# INITIAL STUDY / ENVIRONMENTAL ASSESSMENT

# FOR

# LENWOOD/HIGH DESERT ESTATES SEWER PROJECT
# EPA GRANT APPLICATION NO. XP-989700-01-0

Prepared for

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# TABLE OF CONTENTS

**INITIAL STUDY/ENVIRONMENTAL ASSESSMENT**
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**EPA Grant Application No. XP-989700-01-0**

# TABLE OF CONTENTS

**INITIAL STUDY/ENVIRONMENTAL ASSESSMENT**
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# TABLE OF CONTENTS

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**EPA Grant Application No. XP-989700-01-0**

# TABLE OF CONTENTS

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## I. PURPOSE AND NEED

### A. INTRODUCTION

The communities of Lenwood and Grandview are part of an unincorporated area within the sphere of influence of the City of Barstow in San Bernardino County, California. These communities are immediately adjacent to the corporate limits of Barstow. "Lenwood" and "Grandview" are not legal entities; they are the names by which the general areas they refer to are locally known. As such, they do not have hard-and-fast boundaries. "Lenwood" is generally considered to be the area south of the Burlington National Santa Fe (BNSF) railroad tracks that run parallel to Route 66, or National Trails Highway. "Grandview" is generally considered to be the area north of the BNSF railroad tracks which run parallel to the National Trails Highway. High Desert Estates (HDE) is a type-B mobile home park development that is usually locally referred to as part of "Grandview." Its name was given by the original developer. Figures 1 and 2 show the project area regionally and the specific proposed assessment district location.

According to the 1990 Census, the Lenwood/Grandview area had 1,039 deeded lots, including 205 deeded lots in High Desert Estates. These properties, excluding the High Desert Estates, are currently on septic tanks, and the proposed project will extend sewer lines to these lots to replace the failing septic system in these communities. One Lenwood lot is already connected to the Barstow city sewer system, and 35 of the 834 Lenwood lots are adjacent parcels, owned by the same owner, with one dwelling straddling both. A total of 599 developed parcels will be immediately connected in Lenwood. The remaining 199 parcels will be provided with a lateral connection to the property line for sewer service when developed. Thus, all affected parcels in the Lenwood area will be served by the sewer system upon the completion of this project.

Median household income for this area was $27,222 in 1990. The Lenwood community is also included in the boundaries of County Service Area 70 S-7 (CSA 70 S-7), an independent special district governed by the County of San Bernardino Board of Supervisors. This district has sanitation powers and will be responsible for the actual design, bidding, project management and construction of the sewage collection system. CSA 70 S-7 was formed in November of 1977 to impose a one-time service charge to determine community interest in forming a special assessment district for sewer service. Attempts to form an assessment district failed at that time. In July, 1999 discussions were again held with the community of Lenwood to gauge interest in forming an assessment district. These discussions were resumed due to the escalation in the number of failing septic tanks throughout Lenwood.

When High Desert Estates was originally developed, it was sewered (unlike the Lenwood community and the rest of Grandview). Its sewer system was constructed as a private collection system connected to the existing City of Barstow collection system. Unfortunately, the private collection system is not functioning as originally intended. A preliminary survey was mailed to Lenwood and High Desert Estates residents in January, 2000 to determine interest in forming an assessment district. Seventy-five percent of the respondents indicated that they would vote to approve an assessment district based on then-current estimated costs, which have since decreased.

Federal legislation, HR 4194 (P.L. 105-276 as amended by P.L. 105-277), provided a special appropriation of $3 million to the City of Barstow for water, wastewater and system infrastructure development and

improvements. On December 14, 1999 the County of San Bernardino and the City of Barstow entered into a "Grant Utilization and Indemnification Agreement" whereby the City would apply for a federal Environmental Protection Agency (EPA) grant in the amount of $3 million to finance wastewater system improvements in the Lenwood and Grandview areas (i.e., Lenwood and High Desert Estates). Total project costs are estimated to be $6,544,000. The balance of the project not covered by the EPA grant will be financed by a U.S. Department of Agriculture (USDA) grant and loan under its Rural Utilities Service Water and Waste Disposal Program. The USDA grant/loan qualifies as a local match.

Thus, all of the mechanisms needed for this sewer project to be considered are now in place, i.e., the funding, project management through construction under an assessment district and this environmental document. This environmental document is being prepared to analyze the environmental effects under both the California Environmental Quality Act and National Environmental Policy Act prior to authorizing implementation of the project.

## B. PURPOSE OF THE ENVIRONMENTAL ASSESSMENT

Because the City of Barstow is seeking federal funds from EPA for this project, compliance with the National Environmental Policy Act (NEPA) must be demonstrated. The County of San Bernardino Office of Special Districts will be the primary agency implementing the project, and it must show compliance with the California Environmental Quality Act (CEQA) under its procedures. The City of Barstow will serve as CEQA Responsible Agency for the proposed project. Therefore, this environmental document is being prepared as a joint CEQA/NEPA environmental document, termed an Initial Study/Environmental Assessment (IS/EA). This document will provide the necessary information to determine if further environmental analyses are needed. Of particular concern to federal agencies in this review is that the project will be carried out in known habitat for the federally-listed "threatened" species, the desert tortoise. Also, construction will occur on Route 66, or National Trails Highway.

Once the IS/EA is completed, the EPA will either issue a Finding of No Significant Impact (FONSI) or decide to prepare an Environmental Impact Statement (EIS) under NEPA. The County of San Bernardino will either issue a Negative Declaration or determine the need for an Environmental Impact Report (EIR) under CEQA. Should further documentation be required, it is likely that it would also be in the form of a joint CEQA/NEPA document, an EIS/EIR. The U.S. Fish and Wildlife Service (FWS) may also be involved should desert tortoises be found in the project area. Then, a Section 7 consultation would be required under the federal Endangered Species Act. The FWS would have to issue a Biological Opinion on the project in regards to protected species effects.

Only after the above procedures are completed can the funding from EPA be approved and released. Similarly, the County of San Bernardino cannot begin physical construction until the environmental reviews are completed.

## C. PURPOSE AND NEED

There are two project objectives:

1. To provide gravity-flow sewer service to the 798 parcels (599 developed parcels and 199 undeveloped parcels) in Lenwood.

2. To replace the existing non-functioning wet-well/force-main system and provide new gravity-flow sewer service to the 205 parcels in High Desert Estates.

In October of 1998 Terra Geosciences, on behalf of the County Office of Special Districts CSA 70 S-7 zone, conducted a geologic and groundwater evaluation of the Lenwood community area. A copy of this study is available for review at the Office of Special Districts in San Bernardino, California. The study findings were as follows:

1. A localized perched water condition is caused by introduction of leachate into underlying low-permeable strata. When the soil can no longer percolate, leachate rises to the surface and flows into streets and yards, creating a potentially serious health hazard.

2. Failures of the existing on-site disposal systems will continue and increase due to the continued saturation from leachate disposal within the underlying low-permeable strata.

3. On-site septic systems are of limited value and are creating both a nuisance and health hazard due to surfacing of leachate in local areas, and should be replaced by a sewer system connected to the nearby main sewer trunk line.

Regarding High Desert Estates, this development is a type-B mobile home park consisting of 205 deeded lots. This park is served by a private collection system, which consists of a lift station, pump and four-inch PVC force main, connecting to the existing City of Barstow collection system. High Desert Estates is downhill from the City's sewage treatment plant, so its sewage has to be pumped 6,530 linear feet (approximately 1.25 miles) uphill. The system was apparently designed on the assumption that there would be constant flows of sewage to HDE's lift station and pump. The pump is designed to turn on automatically when there is sewage to be moved through the force main to the City-maintained gravity-flow collector at the end of the force main (east of Citrine Road, see Figure 3).

However, in practice, the flow to the lift station is intermittent, not constant. This means that the pump only works part of the time, and results in sewage accumulating in the force main instead of moving straight through to the City's gravity-flow collector and on to the sewage treatment plant. While the sewage sits in the force main, it generates corrosive hydrogen sulfide gases that have damaged and continue to damage City manholes and lines downstream. The HDE Homeowner's Association has already had to pay several thousand dollars in 1994 to replace 23 damaged manholes, and several manholes again need repair. These costs are in addition to the high costs incurred monthly by the Homeowner's Association to maintain the lift station and force main in working order. Because the existing collection system is private, the HDE Homeowner's Association is responsible for all costs of operating, maintaining and repairing the lift station and force main, including such costs as the repair of the force main after a breakage due to a recent major storm event. As a result, replacement of this failing sewage system is a high priority to the local residents.

# II. PROPOSED ACTION, INCLUDING ALTERNATIVES

## A. PROPOSED ACTION

As previously described, the project generally consists of the installation of sewers within an area where septic tanks are failing and groundwater quality is being degraded. This Initial Study/Environmental Assessment (IS/EA) evaluates the potential effects on the environment from construction of the new sewer system, as well as its operation. This IS/EA evaluates sixteen specific environmental issues through the use of the County's Initial Study Environmental Checklist Format. This approach addresses CEQA compliance for the San Bernardino County Office of Special Districts as the State lead agency. The standard review requirements under guidelines for NEPA have been integrated into this format to also ensure that NEPA requirements are fulfilled to the satisfaction of EPA, the lead agency under NEPA.

### 1. Location

The proposed project will occur in the communities of Lenwood and Grandview, which are part of an unincorporated area within the sphere of influence of the City of Barstow in San Bernardino County, California. These communities are immediately adjacent to and west of the current corporate limits of the City of Barstow. The project area (consisting of the two project sites: High Desert Estates and the Lenwood development) is approximately 1.07 square miles within the southwest corner of USGS Barstow Quadrangle, 7.5 minute California topographic map series, in Sections 8 and 17, T9N R2W, SBM. Main Street, or Route 66, runs in a southwesterly direction through the project area. Highway 58 runs north-south a mile to the east of the project area and the intersection of Highway 58 with Interstate 15 is located more than a mile to the southeast. Refer to region and site maps in Figures 1 and 2, and also to Figure 3, which show the areas to be sewered.

### 2. Environmental Setting

The proposed project is located in the growing high-desert community of Barstow, which is located along major vehicle and rail transportation junctions. Interstates 15 and 40 intersect just east of the city. Highway 58 connects to Interstate 15 southwest of the city. At the freeway interchanges, commercial centers have developed. Lenwood Road, from the project area southeast to Interstate 15, contains one of these centers. Most commercial development has occurred along the Main Street corridor. The project area is at the western edge of Main Street development and consists of a mix of residential, industrial, commercial, and vacant lots. Santa Fe Railway has expanded its facilities over the years and has acquired much land north of Main Street to the Mojave River. These facilities are the main barrier to development north of the project area.

There are also natural features that have limited development in the project area. The northern part of the project area is in a designated blow-sand zone. Due to the sparse vegetation in this portion of Barstow, loose alluvial soils and existing wind patterns, wind erosion is high. The entire area consists of almost flat or slightly sloped topography with alluvial soils associated with the Mojave River corridor. The Mojave River floodway is located a mile to the north, but the southwestern portion of the project area is within a separate mapped Lenwood 100-year flood zone. Finally, there is an Alquist-Priolo Earthquake fault zone, the Lenwood Fault, just east of the project area, which trends to the northwest. There an another unnamed surficial fault through the middle of the project area, extending east-west.

The climate in the region is typical of the Mojave Desert, characterized by hot dry summers, somewhat cold winters, and infrequent rainfall. Wind is a major contributor to air quality. Prevailing breezes of 10-20 miles per hour originate from the west. Periods of high winds can be experienced every month of the year. The region is within the Southeast Desert Air Basin. Specifically, the region and project area are within the

boundaries of the Mojave Desert Air Quality Management District (MDAQMD) which is responsible for managing air quality issues.

3. Project Characteristics

The project will provide sewer service to 798 parcels in the community of Lenwood and to 205 parcels in High Desert Estates. The City of Barstow Water Reclamation Facility will accept and treat the sewage.

The project will have two phases:

> **Phase One** – This phase consists of project planning, including preparation of environmental review documents and a Request for Proposal for design and construction.
>
> **Phase Two** – This phase consists of engineering design; surveying and permits, as well as materials and compaction testing; construction, including environmental monitoring during construction; and then delivery and treatment of the sewage at the existing Barstow Water Reclamation Facility. This phase is anticipated to take fifteen months for design through construction to initiation of operation..

The Lenwood portion of the project will involve: construction of a sewage collection system in Lenwood streets, construction of lateral connections from street to homes, repaving of streets to patch all pavement cuts, pumping and backfilling of all existing septic systems, and payment of all fees for connection to the Barstow Water Reclamation Facility. The installation of and connection to the main sewer line will include approximately 42,820 feet of eight-inch sewer lines and 80 manholes. These lines will inter-tie into the City of Barstow trunk line located adjacent to Route 66 (or National Trails Highway).

Lenwood construction elements are:

- Installation of 42,820 linear feet of 8-inch sewer line for collection
- Repair of 40,820 linear feet of asphalt pavement
- Installation of 798 lateral lines to edge of pavement
- 80 manholes
- 25 cleanouts
- 599 lateral connections
- 599 septic closures
- 2 trunk line connections
- Connection to Barstow Water Reclamation Facility

The High Desert Estates portion of the project will involve: installation of a new gravity flow sewer line with manholes, removal of the wet well and replacement with a manhole, and abandonment of the existing four-inch force main. After the proposed project is built, the City of Barstow will take over responsibility for operating and maintaining the new gravity flow sewer line.

High Desert Estates construction elements are:

- Installation of 12,540 linear feet of 8-inch sewer line for gravity flow collector
- 31 manholes
- Removal and conversion of wet well
- Junction at Barstow trunk line
- Abandonment in-place of force main

## B. ALTERNATIVES

### 1. No Action Alternative

The No Action alternative would result in the Lenwood/High Desert Estates wastewater management systems remaining in the same condition as currently exists. This is not acceptable, due to the continued problems with the septic systems in place, particularly the perched groundwater condition, created by the disposal of subsurface disposal system (septic tank) leachate, and related groundwater contamination. The periodic rising and overflow of leachate to the surface also causes a potential serious public health hazard. However, as required by NEPA the no action alternative will be reviewed as part of this environmental document.

### 2. Other Alternatives

Cleanouts and replacement of individual failing septic systems as required is not considered a suitable option. Many of the failed systems have already been replaced and have subsequently failed, requiring regular pumping out of the septic tanks. As long as there is continued saturation from effluent disposal within the underlying low-permeable strata, the mounding of leachate will occur. Subsequently, this mounded effluent surfaces into the streets and yards. Thus, the overall septic tank failure and related water quality problems in this area would not be addressed by implementing cleanout and replacement of the existing systems. Additionally, as described below, the Barstow Water Reclamation Facility has more than adequate capacity to handle the new flows from the proposed project.

The development within the project area has been established for a number of years. Besides the existing developed parcels, several others have been approved for development. Since the need for the wastewater treatment system is specific to this location, there are no other sites that can be feasibly considered for this project.

No other alternatives have been identified that could meet the proposed project need and objectives.

# III. AFFECTED ENVIRONMENT

The following discussion of the affected environment generally addresses the sixteen environmental issues that will be further analyzed under Environmental Consequences. By presenting information in this format, it will be possible for the environmental review to more easily serve both CEQA and NEPA environmental documentation requirements. The affected environment issues are addressed in the following order, which includes NEPA topics and also follows the order in the CEQA Initial Study Environmental Checklist form format: air quality, water quality, utilities/services, land use, transportation, natural environment, human population, construction, energy impacts, coastal zone management act, historic preservation, wild and scenic rivers, endangered species, floodplain management and protection of wetlands, farmland protection, and coastal barrier resources.

## A. AIR QUALITY

The project area is located in the high desert section of the Southeast Desert Air Basin (SEDAB). The area is characterized by low amounts of precipitation and hot dry weather in the summer and cool weather in the winter. Precipitation averages 4.5 inches per year, ranging from 1.1 inches to 7.9 inches. Rainfall in the area is characterized by sudden storm events, which also generate significant runoff. Temperatures fluctuate greatly, typical of the high desert. Mean daily temperatures range from 31 degrees F in December and January to 102 degrees F in July and August. Wind is a major contributor to background air quality, with prevailing breezes of 10-20 miles per hour originating from the south and west. Periods of high winds can be experienced in every month of the year. Such periods are considered to be winds exceeding 12 miles per hour occurring 36 percent of the time. April, May and June are the windiest months, whereas December and January are the calmest months (City of Barstow, General Plan, 1997 Update).

The area lies wholly within the jurisdiction of the Mojave Desert Air Quality Management District (MDAQMD). According to federal classification, the MDAQMD has severe ozone and fine particulate ($PM_{10}$) pollution. Ozone does not originate from vehicle and industrial exhaust in the Barstow area, despite it being a major automobile, truck and rail transportation corridor. Rather, the ozone comes from smog blowing from the southwest through the mountain passes from the South Coast Air Basin (the Los Angeles Basin). Ozone concentrations are highest, and often exceed state and federal air quality standards in the summer months, May through September (City of Barstow, General Plan, 1997 Update). Thus, although the project site is located within a nonattainment area and, therefore, must contribute to the MDAQMD's attainment plan for meeting ozone standards, Barstow can only minimally affect reductions in ozone concentrations due to the out-of-region source of this pollutant.

The U.S. Environmental Protection Agency designated a major portion of the San Bernardino County area as a $PM_{10}$ nonattainment area, especially those locations in the high desert with population concentrations, such as Barstow. There are two sources of fugitive dust that contribute to the particulate nonattainment problem: windblown dust from regional moderate to high wind episodes, and dust generated by human activities. Regional wind events, i.e., sandstorms, are considered natural and not controllable. The project area is located in a blowsand hazard zone, as indicated in the Barstow General Plan (City of Barstow, 1997 Update). Human activities include travel on unpaved roads, construction activities, and operational activities at certain sites (MDAQMD, 1995). These are regulated under several policies of the City of Barstow, as well as by certain rules of the MDAQMD. Of relevance to the proposed project are construction activities which will generate some fugitive dust.

Table 1 as follows shows recent data for ozone and $PM_{10}$.

**Table 1**
**BARSTOW AIR QUALITY DATA**

| Year | Days exceeding state standard | Days exceeding federal standards | Maximum 1-hour reading in ppm |
|---|---|---|---|
| **Ozone** | | | |
| 1999 | 10 | 0, 10 | 0.12 |
| 1998 | 9 | 0, 5 | 0.108 |
| 1997 | 16 | 0, ns | 0.12 |
| **$PM_{10}$** | | | |
| 1999 | 1 | 0 | 69 |
| 1998 | 1 | 0 | 53.2 |
| 1997 | 2 | 0 | 58 |

Source: MDAQMD Air Quality Summary Data
Ozone State Standard: 0.09 ppm based on 1-hr average
Ozone Federal Standards: 0.12 ppm based on 1-hr average and
0.08 ppm based on 8-hr average (ns= no standard in 1997)
$PM_{10}$ State Standard: 50 ug/$m^3$ based on 24-hr average
$PM_{10}$ Federal Standard: 150 ug/$m^3$ based on 24-hr average
ppm = parts per million
ug/$m^3$ = micrograms per cubic meter

## B. HYDROLOGY AND WATER QUALITY

The following information is summarized from the 1998 Terra Geosciences geologic and groundwater evaluation report prepared for this project. The project area is located over a mile to the south of the Mojave River, the major surface water body in the area when it flows. The Mojave River originates from the northern side of the San Bernardino Mountains at the junctions of Deep Creek and West Fork Mojave River. It generally flows northward and turns to the east-northeast in the vicinity of Barstow, where it continues to Afton Canyon. There are several dry washes located along the western portion of the project area, which appear to carry surface water intermittently during storm events. There is no evidence of perennial shallow water conditions along these washes.

The Mojave River is the principal source of water recharge to the Middle Mojave River Groundwater Basin, over which the project area lies. The project area is specifically included in the Centro subarea groundwater management area as defined by the Mojave Water Agency. Non-water bearing igneous and metamorphic rocks underlie the groundwater basin and form the surrounding mountains and hills in the region. The water-bearing deposits are unconsolidated and partially consolidated continental sedimentary deposits that form two aquifers. The upper aquifer is a shallow alluvial aquifer, approximately 200 feet thick and within a mile of the Mojave River. It is a very productive aquifer in the region, yielding much of the groundwater supply. A regional aquifer underlies most of the groundwater basin and consists of unconsolidated older alluvium and fan deposits of Pleistocene to Tertiary age and partly consolidated to consolidated sedimentary rocks of Tertiary age. These deposits are as thick as 1,000 feet, with permeability generally decreasing with depth.

Trends in groundwater levels have been derived from regional well data, primarily from those along the Mojave River to the northwest of the project area, and from U.S. Geological Survey studies. There has been a general decline in groundwater levels in both the shallow alluvial and regional aquifers, due in part to withdrawals for agricultural and municipal and industrial purposes, within the Centro Subbasin, and less than

sufficient replenishment from the upstream basins, i.e. the Alto Subbasin. However, the wells in the shallow alluvial aquifer have exhibited alternating periods of declining and rising water levels, associated with flows in the Mojave River. Groundwater levels rise during wet periods, when floodwaters recharge the shallow aquifer, and decline in dry periods. Older wells in the western half of the project area indicated that groundwater levels ranged from 69-80 feet below ground surface in the 1950s, where newer wells in the northwestern portion showed a decline of 20-30 feet since the 1950s. Today, it is estimated that the shallowest groundwater in the project area is approximately 100 feet below ground surface.

The referenced well data indicate that the numerous on-site septic disposal system failures are not due to any rising or high natural groundwater table. This assumption was made due to shallow water surfacing in trenches excavated during replacement of some of the failed systems and other construction-related projects. Rather, there is a shallow perched condition originating from on-site effluent disposal into underlying low-permeable strata. Once the shallow alluvial deposits becomes saturated, and the effluent reaches the lower less-permeable strata at depth, the water perches locally (mounds) and then causes the septic systems within the project area to fail.

Groundwater in the Centro recharge area, as influenced by the surface waters of the Mojave River, is predominantly sodium bicarbonate in character, believed to be derived from the granitic rocks occurring in the San Bernardino Mountains. The average TDS (Total Dissolved Solids) concentration in the region is 300 mg/l (City of Barstow, General Plan, 1997 Update).

The Water Quality Control Plan for the Lahontan Region (California Regional Water Quality Control Board, 1994) describes the beneficial uses and water quality objectives for both surface and ground waters within its jurisdiction. Because this section of the Mojave River mostly flows underground in its channel and is closely associated with groundwater, the designated groundwater recharge and municipal water supply uses result in drinking water quality objectives being applied. Similarly, the aquatic and wetlands uses are designated for groundwater, such that certain aquatic life support water quality objectives apply. The surface water uses are listed for “minor surface waters”, i.e. where there is surface water within the hydrologic unit. The following table shows the designated beneficial uses.

**Table 2**
**BENEFICIAL USES OF THE MOJAVE RIVER**
**IN BARSTOW AREA**

| Use | Surface Water | Groundwater |
|---|---|---|
| Municipal Supply | X | X |
| Agricultural Supply | X | X |
| Industrial Supply | | X |
| Recreation-1 (Swimming) | X | |
| Recreation-2 (Boating, Fishing) | X | X |
| Warmwater Aquatic Habitat | X | |
| Coldwater Aquatic Habitat | X | |
| Wildlife Habitat | X | X |
| Groundwater Recharge | X | |
| Freshwater (Wetlands) | | |

Source: Regional Water Quality Control Plan, Lahontan Region, 1994

Those water quality parameters of issue to this project are bacteria, nitrates and salts (Total Dissolved Solids, TDS). Raw or poorly treated sewage from human origins can contain disease-causing organisms (pathogens), including bacteria, viruses and parasites. The use of coliform, or intestinal, bacteria as the measurement criterion for bacterial pollution is considered to be indicative of this type of pollution. The surface water quality objective for bacteria is for fecal coliform concentration, which shall not exceed a log mean of 20/100 milliliter (ml) during any 30-day period, and shall not exceed 40/100 ml in more than 10 percent of all samples collected during any 30-day period. The groundwater quality objective for all waters designated as municipal supply is the drinking water standard, i.e., less than 1.1/100 ml of coliform bacteria during any 7-day period.

Nitrates come from mostly the solids portions of human waste, whereas salts come from liquid portions. Additionally, water treatment or wastewater treatment processes can add to levels. High nitrates can cause severe physiological problems in infants and the drinking water standard has been established at 45 milligrams per liter (mg/l) as nitrate ($NO_3$ ) nitrogen, or 10 mg/l as total nitrogen (N). A conservative surface water quality objective of 5 mg/l as nitrate nitrogen has been established for the Mojave River at Barstow.

Regarding TDS, the drinking water standards are based on taste rather than direct health effects. At about 500 mg/l TDS, water starts tasting salty. A level of 1000 mg/l TDS is used as a maximum value allowed for drinking water supply. However, TDS is also an agricultural or irrigation water supply issue, as some plants are sensitive to TDS even at levels below 1000 mg/l (citrus, strawberries, certain lawn grasses). The water quality objective for surface water in the Mojave River near Barstow is 445 mg/l TDS, in line with drinking water quality guidelines.

Historically, water quality study of the Mojave River, including the Lenwood area has been conducted by the U. S. Geological Survey (USGS). The USGS documents water quality degradation in general in Report 93-4137, "Potential for Groundwater Contamination from the Movement of Wastewater Through the Unsaturated Zone, Mojave River Basin (1993). The failures of septic systems, with known shallow soils saturation and effluent surfacing, are assumed to have created bacterial and nitrate pollutants at levels above the referenced standards in both surface and groundwaters within the project area. This is consistent with the findings in the USGS 1993 report referenced above.

## C. UTILITIES/SERVICE SYSTEMS

Except for sewer services, the project area is already served by other utilities. Southern California Water Company provides domestic water supply. The Company's Barstow System is supplied by 25 wells, with 12 reservoirs able to store 4.53 million gallons of water. A main well facility is located a mile north of the project area. Southern California Edison supplies electricity. Southwest Gas Corporation provides natural gas service. In terms of solid waste disposal, the project area is served by licensed waste collection companies that deliver the solid waste to the Barstow Sanitary Landfill which is located southeast of the City (City of Barstow, General Plan, 1997 Update).

The Barstow Water Reclamation Facility currently processes 2.7 MGD (million gallons per day), with an overall existing capacity of 4.5 MGD. Treated wastewater goes to percolation ponds. Plant operations are regulated by the California Regional Water Quality Control Board, Lahontan Region, under Waste Discharge Order No. 6B360101001. The facility does not have a National Pollutant Discharge Elimination System Permit (NPDES), as it is under 5 MGD and doesn't discharge to surface waters.

Septic tank haulings are currently allowed to be disposed at the Barstow landfill. The Barstow Water Reclamation Facility cannot take septic tank wastes, as it is not equipped to handle the solids concentration in these haulings.

## D. LAND USE/PLANNING

Although the Lenwood and Grandview communities, the latter including High-Desert Estates, are not within the incorporated limits of the City of Barstow, significant existing and planned developments are located to the east, south and west. The project area is generally on or adjacent to the Main Street (Route 66) corridor, with general mixed use areas to the east and west. The Main Street corridor is planned for continued development of industrial, commercial and residential areas, according to the General Plan (City of Barstow, 1997 Update).

The Lenwood Road corridor, south of the Lenwood community site and extending to Interstate-15, is a designated Growth Area 3. The Lenwood Specific Plan focuses on 2,280 acres of new industrial and commercial development, related to proximity to the freeway and the already developing commercial center at the interchange of Lenwood Road and the I-15. The area to the west of the project area, west of Lenwood Road and north of the railroad tracks to the Mojave River, is slated for general industrial use. Further south and southwest of the project area, planned residential communities are under study. Refer to Figure 4, which shows the project area in relation to surrounding City of Barstow land uses.

There are already sewer trunk lines in existence along both the Main Street and Lenwood Road corridors. The City is thereby preparing to serve new development, mostly to the east and south of the project area.

According to the San Bernardino County General Plan (1991, with 1995 Update), the project area is identified with the following land uses: Rural Living, Single Residential and Rural Commercial. It is designated as having two hazard areas: geohazard (Lenwood Fault) and floodplain (within 100-year floodplain). It is included in the Barstow Subregional Planning Area, RSA 32a, which generally encourages single-wide mobile home parks and temporary dependent housing. Policies LU-9 and LU-10 apply to sphere of influence areas. Under LU-9, service connections area required for projects that are less than one mile away from sewer availability. Under LU-10, the County is committed to work with all other agencies (in this case, the City of Barstow) to minimize incompatible land uses and conflicting plans for development. Finally, the project area is in a designated Improvement Level 3 planning area, in which commercial development, particularly clustered commercial development, is to be promoted.

## E. TRANSPORTATION/TRAFFIC

Direct access to the Lenwood community is provided by several existing paved and unpaved internal roads off of Main Street (National Trails Highway, Route 66). High Desert Estates has two main accesses, one from Lenwood Road to the west and one from Jasper Road to the south. See Figure 3. Main Street and Lenwood Roads are considered primary arterials, i.e., the most-heavily trafficked routes second to the freeways (I-15 and I-40). There is a traffic signal at the intersection of these two roads. Main Street through the project area and to the west-southwest, becomes the major bypass route from Barstow to Victorville when the I-15 is closed. Main Street is also a major truck route, due to proximity to the rail yards and to truck service centers.

Main Street, further to the east of the project area at the junction with State Route 58, carries 10,401-16,400 vehicles per day. Lenwood Road at the junction with Main Street, just west of the Lenwood community, carries 4,351-10,400 vehicles per day, according to the General Plan (City of Barstow, 1997 Update). Existing bus routes along both Main Street and Lenwood Road serve the project area. Barstow Area Transit and Dial-a-Ride currently carry approximately 600 riders daily throughout Barstow.

Using existing road configurations, estimated volumes for the year 2020 were developed as part of the City's General Plan. Both Main Street and Lenwood Road in the project area are anticipated to have 8,101-20,700

vehicles per day. To mitigate effects of traffic increases, the General Plan recommended specific improvements. Lenwood Road is to be widened to four lanes from Jasper Road southward to Commerce Parkway, near the I-15 interchange. Additionally, where Lenwood crosses the BNSF Railroad, a four lane underpass/overpass is to be constructed. It is currently an at-grade crossing. Both of these improvements would affect the project area.

## F. NATURAL RESOURCES

### 1. Biological Resources

Barstow and vicinity are in the Mojave Desert, containing flora and fauna typical of the region. The project area has the general desert condition of sparse vegetation. The plant communities in the Barstow area are categorized in the General Plan as:

- **Mojave Creosote Bush Scrub** – This is the common plant community of most of the western portion of the Mojave Desert. Creosote bushes (*Larrea tridentata*) are widely spaced shrubs between two and seven feet tall. Other associated plants are burrobush, desert senna, Nevada joint-fir, cheesebush and boxthorn. Creosote bush scrub often integrates with saltbush scrub. Creosote bush scrub is associated with well-drained secondary soils with very low available water holding capacity on slopes, fans, and valleys, i.e., generally in hillier locations.

- **Desert Saltbush Scrub** – These are low, grayish shrubs, one to four feet tall, of various species (*Atriplex*). These plants are tolerant of high soil salinity and are often found around the edges of dry lake playas. They are also associated with the Mojave River floodplain and adjacent areas, being the dominant plant community. Other plants found here are spiny hopsage, boxthorn, suaeda and goosefoot. This plant community is generally confined to fine-textured, poorly drained soils with high salinity and/or alkalinity.

- **Mojave River Associated Habitats** – The main channels of the river itself are very sandy and sparsely vegetated. Tamarisk (*Tamarix*), a non-native species, can be found in clusters along with mulefat, mesquite, willow and other wash-adapted plants. Cottonwood and willow stands can be found in certain locations. Additionally, there are mesquite hummocks in areas adjacent to the river corridor, these being found in sandy elevated "dune-like" locations.

- **Agricultural Lands** – The northwestern portion of Barstow and portions of the Mojave River bottom have been converted from saltbush scrub to agricultural fields. Active fields contain primarily alfalfa. Inactive fields contain mustards, grasses, and weeds such as the Russian thistle.

- **Urban and Other Degraded Lands** – Residential and commercial development has replaced creosote bush scrub and desert saltbush scrub plant communities with non-native grasses, ornamental shrubs and trees, and non-native weeds. Many locations are bare ground or covered by asphalt and structures.

Animals in the Barstow area are those associated with desert habitats, the river riparian habitat, agricultural lands and urban environments. There are many reptiles in desert areas, particularly lizards and snakes. Lizards include the desert iguana, desert spiny lizard, desert horned lizard and western whiptail. Snakes include the gopher snake, speckled rattlesnake, sidewinder and Mojave rattlesnake. There are 92 species of birds in the area. The cactus wren and ladderback woodpeckers are common desert species. Certain birds pass through the area regularly, particularly hawks and other raptors, turkey vultures, and warblers. Those

associated with developed urban settings are ravens, house sparrows and the European starling. Western meadowlarks can be found in agricultural fields and ducks in farm ponds. Small mammals include seven species of bats, desert cottontail, jackrabbit, ground squirrels, pocket gophers, kangaroo rats, mice and woodrats. Larger mammals that are common are coyotes, raccoon, bobcat and kit and gray foxes.

According to the General Plan, areas to the south/southeast of the project area are designated a "high" biological resource area, primarily due to being desert tortoise habitat. Areas to the east and west of the project area are designated as a "medium" biological resource area. The Mojave River corridor, a designated "special" biological resource area, is approximately a mile to the north. Urban and degraded lands are considered to have the lowest biological resource value.

Most of the project area has been previously disturbed and there are residences and other facilities on the sites. However, south and east of the Lenwood community are undeveloped lands containing creosote bush, such that they could be used by the Federally-listed threatened species, the desert tortoise (*Gopherus Agassizii*). The lands to the west, south and north of High Desert Estates are also vacant, consisting of saltbush scrub and dune-like areas. The nearest large agricultural field is a mile to the north of the Mojave River and east of Lenwood Road and contains alfalfa. The Mojave River corridor is north of High Desert Estates and consists of bare sand or sparsely vegetated sand.

As construction activities to emplace sewer lines would disturb areas adjacent to desert tortoise habitat, a desert tortoise survey has been prepared. Biological conditions and other results of this survey are discussed in the environmental consequences section of this report.

2. Geology and Soils

The following information is summarized from the 1998 Terra Geosciences site evaluation. The Mojave Desert is characterized by low mountain ranges and undrained alluvial basins or valleys. The project area is located at the southwestern margin of the Miocene Barstow Basin, containing over 2,000 meters of lacustrine, fluvial, and alluvial fan sedimentary rocks. Sedimentary rocks of Tertiary age and unconsolidated to semi-consolidated sediments of Quarternary age are associated with areas east and northeast of the project area. These exposed or surficial rocks are mainly gray clay shale, some interbedded gray micaceous sandstone, and several beds of hard tan dolomite or limestone up to five feet thick. Most of the eastern portion of the project area contains semiconsolidated older fanglomerate deposits of late Pleistocene age. The western portion of the project area consists of Holocene to possibly latest Pleistocene-age alluvial deposits. These types of deposits originated as outwash and slopewash from adjacent higher lands. Additionally, localized artificial fill originating from residential and commercial development is scattered across the project area.

According to the Soil Survey of San Bernardino County for the Mojave River Area (USDA, SCS, 1985), there are two soils series associated with the project area, the Cajon series and the Victorville series. The Cajon series consist of mixed thermic typic torripsamments. The Victorville series are coarse-loamy, mixed (calcareious) thermic typic torrifluvents. Three specific soils types are indicated on the soils map under these series:

- **Cajon Sand, 0-2% slopes** – Very deep, excessively drained soils on alluvial fans. Alluvium derived from granitic materials. Elevation 1,800-3,200 feet. Rapid permeability—limitations on septics. Runoff slow.
- **Cajon Sand, 2-9% slopes** – Deep, excessively drained soils on alluvial fans. Elevation 1,800-3,500 feet.

- **Victorville Sandy Loam, 0-2% slopes** – Very deep, moderately drained soils on low river terraces and in floodplains. Alluvium derived from granitic materials. Elevation 2,200-2,800 feet. Permeability moderately rapid to 50 inches and moderately blow below this. Medium runoff–flooding hazard. Subject to soil blowing.

Regarding seismic conditions, the geotechnical study (Terra Geosciences, 1998) states that the nearest shown Alquist-Priolo earthquake fault zone is the Lenwood Fault, located approximately one mile to the east of the project area. However, there is also an unnamed fault showing Holocene displacement that traverses through the northeastern portion of the site. The Lenwood fault is a right-slip fault that is somewhat segmented and branching, and it is an extension of the greater Lenwood-Lockhart-Old Woman Springs Fault Zone. There is no observational or literature evidence that the faults in the project area are active, but they could be potentially active (based on surface displacement during Quarternary time; in the last 1.6 million years).

Historic earthquake activity was examined in the geotechnical study within a 62-mile (100 km) radius of the site. This analysis was done to determine if earthquakes had affected groundwater levels in the region. There were at least 36 significant historic earthquakes of magnitude 5.0 or greater within the radius of the site and 293 events of magnitude 4.0 or greater. The closest earthquake epicenter was for a magnitude 4.1 event nine miles northeast of the project area in 1958. It was concluded that regional earthquakes had not affected local groundwater. It should be noted that this analysis is now probably outdated, since the several 1999 Hector area and eastern Barstow (Calico) earthquakes occurred (magnitude approximately 7.0) during 1999.

3. Mineral Resources

The City of Barstow General Plan (1997 Update) generally indicates the Mojave River Corridor as a significant mineral resource, based on the mineral land classification maps of the Division of Mines and Geology. This corridor is both an existing and potential a source of concrete aggregate deposits. It is policy to coordinate with sand and gravel companies to use these areas and manage them. No sand and gravel mining occurs within the project area.

The river corridor is located approximately one mile north of the project area. This portion of the Mojave River is state-classified as MRZ2b, a mineral resource zone containing significant inferred resources based on discovered mineral deposits. It is further shown in the General Plan as an Immediately Significant area, or one that contains lands which are currently permitted for aggregate mining. The specific reach between Lenwood Road and east to the railroad crossing, is ARA-17, or a Highly Significant aggregate resource area. It is described as having 918 acres of 82 foot thick deposits, potentially yielding 197 million tons.

4. Visual Resources/Aesthetics

The Lenwood community is located along Main Street, or Route 66, with mixed commercial and industrial uses on both north and south sides of the street. There are warehouses near the railroad tracks, and also automobile and truck repair operations. Some mini-markets and a commercial printing facility border the housing area. The conditions of many of the buildings are poor, both structurally and in appearance. There are a few fenced off areas containing junk or scrap. Thus, this stretch of Main Street could be considered visually-blighted. Additionally, within the western portion of the Lenwood development, many houses and yards are in poor condition. The only scenic views from Lenwood are to the undeveloped lands to the south, southwest, and east.

High Desert Estates is approximately one-quarter mile north of the Main Street/Lenwood intersection. To the south of the mobile home park is a vacant lot, from which a truck repair facility can be seen, as well as passing trains on the BNSF tracks. To the east and north are undeveloped lands with native vegetation, gently

sloping upward such that any distance view would be obscured by the hill. To the west of the park, and west of Lenwood Road, is an expanse of flat mostly unvegetated lands, which provide scenic views to the west and north.

## G. POPULATION AND HOUSING

The population of Barstow is over 23,000. In the 1980s population increased by more than 16 percent, due in a large part to military operations growth at Fort Irwin and the Nebo Center. The Barstow urban area serves as a housing source for both. Besides government, Barstow is a major transportation center, employing those servicing transportation needs. The annual growth rate is 4 percent, considered to be higher than San Bernardino County's overall growth rate of 3.4 percent. The number of households was 7,530 in 1988, according to the General Plan, with 75 percent of those households consisting of families. Typical household size was 2.74 individuals.

According to the 1990 Census, the Lenwood/Grandview area had 1,039 deeded lots, including 205 deeded lots in High Desert Estates. At this time, 199 parcels are vacant in the Lenwood community. Lenwood contains single-family homes, whereas High Desert Estates contains mobile homes. The median household income for this area was $27,222 in 1990. This qualifies as a low income community using the State's $37,000 per household income level. As such, environmental justice issues will be considered in this environmental document.

Thus, the proposed project will serve existing development, particularly those people living in these communities. Sewer availability will be provided to those lots already planned for, or deeded, but not for lots not yet built upon.

## H. CONSTRUCTION

The construction scenario for the project area has been summarized in the project description. The main activities related to construction, that will be evaluated in the environmental consequences section of this report, include: transporting sewer pipe to the sites, setting up staging areas, trenching and emplacement of pipe, installation of manholes, closure of trenches and repair or repaving of asphalt. Other activities include: cleanout and closure of existing septic systems, removal and conversion of an existing wet well, installation of a junction with the existing trunk line, and abandonment of the existing force main. All work will be conducted in existing road rights-of-way. Of the 55,360 linear feet (or 10.6 miles) of new sewer line to be put in, it is anticipated that less than 5,200 linear feet (or one mile) will be installed at any one time. Trenches will be no more than 15 feet wide by 10 feet deep. Temporary rerouting of traffic internally in the Lenwood/High Desert Estates developments may be necessary. Construction will temporarily affect traffic on Main Street while the sewer main is installed..

## I. ENERGY ISSUES

The project is located in an existing developed area and, thus, does not involve any need for new operational energy resources. The overall project will result in a reduction of energy consumption, as it will eliminate the existing pumping of sewage up-hill and change the system to a gravity-flow one. There will be energy, primarily petroleum products and perhaps some electricity, consumed by the construction activities.

## J. COASTAL ZONE MANAGEMENT ACT

The proposed project area is located more than 70 miles from the California coast and therefore, this Act does not apply to the proposed project.

## K. CULTURAL RESOURCES

Both the High Desert Estates and Lenwood communities are in an area mapped for possible or documented cultural resources, according to the Barstow General Plan (1997 Update). Significant historic sites are associated with Main Street, or Route 66, and the railroad tracks, specifically, Barstow Depot and Harvey Houses. Of major concern to the project is Route 66, a National Trails Highway, which is both a scenic and cultural resource. Due to this, a cultural survey was conducted by CRM Tech as part of this environmental review process. A copy of this survey is attached as Appendix 1 to this document.

The cultural resources survey was conducted by CRM Tech in October, 2000. The Area of Potential Effects (APE) was determined to consist of the proposed rights-of-way of pipelines and auxiliary tie-ins, which are confined within existing public roadways traversing in and around the project site as outlined in Figure 3 and in more detail in Figure 11 of Appendix 1. CRM Tech conducted historical background research for the APE, initiated a historical/archaeological resources records search, and carried out a systematic field survey. During the course of this investigation, several previously recorded cultural resource sites were identified in close proximity to the APE, but only two of these sites, Sites CA-SBR-2910H and -6693H, representing the historic U. S. Route 66 and Santa Fe Railroad, respectively, were found to be present within the APE. Both sites have been determined to qualify as "historic properties," but the physical features of these sites within the APE are considered to be non-contributing elements to their historic significance.

## L. WILD AND SCENIC RIVERS

The proposed project is located in an alluvial valley, related to the Mojave River corridor. A mile to the north of the project area is the Mojave River, which, at this location in its drainage basin, does not have surface flow. The River is not designated as a Wild and Scenic River; in fact, this section of the river is considered an industrial resource for sand and gravel mining. There are no perennial surface streams or other natural water bodies in the project vicinity. For these reasons the Wild and Scenic Rivers Act does not apply to this project.

## M. ENDANGERED SPECIES

The project area is located within the habitat of the Federally-listed "threatened species," the desert tortoise, as previously discussed in Section III.F.1 of this report. Although there are developed home sites within the project area, there are some undeveloped portions of the Lenwood community. The adjacent lands to the south and east of Lenwood are creosote bush-dominated and may be suitable for use by the tortoise. Therefore, a survey has been conducted for this species as part of this environmental review. The desert tortoise survey material is provided as Appendix 2 to this document which contains the field survey forms. The habitat along the pipeline alignment was surveyed (100%) and the zone of influence was surveyed as required by FWS protocol and the survey determined that no tortoise occur within the project area. This is consistent with the designation of the project area as Category 3 habitat, or low potential for occupancy by the tortoise. Refer to the biological resources section of the environmental consequences portion of this report for the analysis of potential impacts of this project on this species.

## N. FLOODPLAIN MANAGEMENT AND PROTECTION OF WETLANDS

A portion of the Lenwood community is located within a mapped 100-year floodplain. This floodplain is associated with Lenwood Creek to the south which drains westward to the Mojave River. There is a small portion at the northeast side of the project area, the Lenwood Channel, which drains northward, also into the Mojave River. Based on a site visit to the project area, no provisions for drainage control seem to be evident. The proposed project would not affect current flooding or flood hazard conditions.

There are no wetlands in the project area to be considered or protected. Essentially, these two residential communities are located in desert conditions with no surface water present, except during major storm events and therefore, the environment of the project area can not support any wetlands.

## O. FARMLAND PROTECTION

The proposed project will be constructed within an area that has been graded, compacted and built upon for residential development. No agricultural resources exist on or near the project area. The nearest agricultural field is located more than a mile north of the High Desert Estates complex, and across from the Mojave River.

## P. COASTAL BARRIER RESOURCES

The project site is located more than 70 miles from the California coast. Thus, this issue does not apply to the project area or to the proposed project.

## Q. OTHER IMPACT ISSUES

### 1. Hazards and Hazardous Materials

The project area is located within a known hazardous materials transport corridor, due to truck and rail traffic on both Main Street and Lenwood Road, and the BNSF railroad. The corridor is specifically identified from the railyards along Main Street to the truck distribution centers on Lenwood Road near the I-15 interchange. Because of this, the City of Barstow has developed a Standardized Emergency Management System (SEMS) to respond to accidental releases of hazardous or toxic materials, according to the General Plan.

The project activities will involve cleaning out of septic systems, and subsequent haulage of septic materials for proper disposal at the Barstow landfill. This will require use of licensed septic haulers and transport to a licensed disposal site, specifically the Barstow Landfill. Thus, it is not anticipated that the project will create any new hazardous materials transport, in comparison to the materials already transported within the area.

### 2. Noise

Most of the Barstow area is subjected to noise in the form of transportation-generated noise. Vehicle traffic and rail traffic comprise the bulk of this. The project area is located within a designated “noise corridor”, particularly along Main Street or Route 66. Noise is due to transportation activities, specifically related to truck traffic and to the BNSF railroad traffic. The level of noise in this corridor is anticipated to be 65 dB (Community Noise Equivalent Level, CNEL) or more in the future. The CNEL term refers to the measure of the level of sound averaged over a 24-hr period. The term dB is the acronym for “decibel” a unit measurement of sound energy, which at zero is equivalent to the lowest sound the human ear can distinguish. Typically, residential areas are planned to have no more than 60-65 db CNEL. It is evident that the project area, then, is likely subjected to noise levels above those normal for residential communities due to future transportation activities.

Construction activities related to the proposed project will generate noise above the 60 or 65 db levels. However, as discussed in the environmental consequences section of this report, the impacts may be less than those experienced by other residential communities, due to the ambient noise already common to the area.

3. Public Services

The implementation of this project should not adversely impact other public services. Rather, it should improve general conditions within the project area. Provision of sewer services would perhaps allow expanded use of some of the facilities in the project area. There may be a temporary need for police services for traffic control on Route 66 (Main Street) or Lenwood Road during construction to emplace sewer lines there.

There is a fire station on Paris Avenue in the Lenwood community. The eastern portion of the Lenwood community already has fire hydrants in place. There is an elementary school and a community park located centrally within the Lenwood community. Additionally, a Catholic church is located in the western portion of this area.

4. Recreation

Centrally located in the Lenwood community is a community park on Ash Avenue, of approximately two-acres or less in size. A smaller park area is located south of the fire station on Paris Avenue. High Desert Estates has a community building and swimming pool. Both of these facilities currently appear to be not in use. Jasper Park is located on Jasper Road to the east of the mobile home park.

# IV. ENVIRONMENTAL CONSEQUENCES

The proposed project, construction and operation of the sewer system in the Lenwood/High Desert Estates communities, will cause temporary changes to the physical environment during construction activities. Based on the existing environmental conditions outlined above in the "Affected Environment" discussion, this section of the Environmental Assessment evaluates the effects of the changes on the environment. Since this document combines CEQA and NEPA evaluations, the Environmental Consequences section is presented in the same order as the issues are presented in the previous discussion. However, the Initial Study Environmental Checklist Form used by San Bernardino in its CEQA compliance process addresses the issues in a different order. This checklist is included at the end of the evaluation and appropriately referenced to the text. The questions posed in the Initial Study Form are included and addressed in each topical section.

## A. AIR QUALITY

*1. Would the project conflict with or obstruct implementation of the applicable air quality plan?*

The governing air quality management plan is that of the Mojave Desert Air Quality Management District (MDAQMD). The air quality issues related to this project are those of construction emissions, i.e. airborne dust and emissions from the engines of heavy equipment, and transportation emissions, i.e., construction worker and truck traffic during construction. There are no operational emissions to consider, as this project will not impact current operations at the Barstow Water Reclamation Facility (Refer to discussion under Section III.C.5). There are no cumulative emissions to consider, as this project only serves current and authorized development and is not considered to be growth-inducing.

The small size of the project, as well as its temporary and localized effects, are forecast to not generate sufficient emissions to conflict with or obstruct implementation of the Air Quality Attainment Plan adopted by the MDAQMD for this portion of the SEDAB. As discussed in the following items, air pollutant levels to be generated by the project are below those considered to be significant. All the general mitigation measures required for construction activities will be applied as part of the project.

*2. Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?*

The MDAQMD has not adopted official thresholds to determine the significance of pollutant emissions from projects. Unofficially, offset threshold amounts identified in Rule 1303 of Regulation XIII, New Source Review of its Air Quality Attainment Plan (AQAP) can be used, expressed in tons of pollutants per year (TPY). Rule 1303 thresholds are:

| | |
|---|---|
| Carbon Monoxide (CO) | 100 TPY |
| Reactive Organic Compounds (ROC) | 25 TPY |
| Oxides of Nitrogen ($NO_X$) | 25 TPY |
| Oxides of Sulfur ($SO_X$) | 25 TPY |
| $PM_{10}$ | 15 TPY |

The U.S. Environmental Protection Agency (EPA) has studied large construction projects, which are estimated to generate 1.2 tons of fugitive dust per acre of soil disturbed per month of grading and site preparation activity. This project will disturb a total of 19 acres surface area (15 ft. wide trenches for a length of 55,360 ft. or 10.6 miles). If it is assumed that 2.7 miles of sewer line can be emplaced per month for a four-month construction period, this would disturb 4.8 acres per month. This would generate 5.76 tons of fugitive dust per month, or a total of 23 tons. However, watering down of the site, which is required as part

of this project, can reduce these emissions by 50%. The total particulate emissions then would be 11.5 tons or under the 15 TPY $PM_{10}$ threshold.

The construction phase of the project will generate fugitive dust which can adversely impact adjacent sensitive land uses, such as residential uses. In order to comply with MDAQMD's $PM_{10}$ Attainment Plan for construction and demolition activities, some mitigation measures are mandatory. These are listed below. Dust Control Plans and further measures are required for projects that disturb over 100 acres. As this project is estimated to disturb 19 acres, these additional measures are not required.

**Measures to control fugitive dust:**

- Water will be used for short-term surface stabilization.
- Chemicals or vegetation will be used for surface stabilization upon completion of grading activities if subsequent site developed is delayed.
- Trackout on paved roads will be minimized.
- There will be rapid cleanup of project-related trackout or spills on paved roads.
- Haul trucks will be covered.
- Grading and other soil movement activities will be minimized when winds exceed 30 mph.

In terms of construction equipment emissions, heavy duty equipment emissions are difficult to quantify because of the variability in daily schedules and particular equipment used. However, it will be assumed that all of these pieces of heavy equipment might be operating at any one time, operated for 8 hours per day for the four-month anticipated construction period (80 days). Equipment does not operate at full load, additionally, such that the below presents a worst-case scenario. The following factors and analyses use the CEQA Handbook of South Coast Air Quality Management District (SCAQMD, 1993), since MDAQMD does not have a similar document.

| Equipment | Total Exhaust Emissions at 100% Load in Tons | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | CO | | ROG | | $NO_X$ | | $SO_X$ | | $PM_{10}$ | |
| | D | G | D | G | D | G | D | G | D | G |
| Trencher | (0.02)<br>0.006 | (0.057)<br>0.18 | (0.003)<br>0.001 | (0.026)<br>0.008 | (0.022)<br>0.007 | (0.011)<br>0.004 | (0.002)<br>.0006 | (.0005)<br>.0002 | (.0015)<br>.0005 | (.00005)<br>.00002 |
| Backhoe | (0.015)<br>0.005 | (0.057)<br>0.18 | (0.003)<br>0.001 | (0.025)<br>0.008 | (0.22)<br>0.07 | (0.011)<br>0.004 | (0.002)<br>.0006 | (.0005)<br>.0002 | (0.001)<br>.00032 | (.00005)<br>.00001 |
| Loader | (0.572)<br>0.18 | (15.57)<br>4.98 | (0.23)<br>0.07 | (0.515)<br>0.68 | (1.9)<br>0.61 | (0.518)<br>0.166 | (0.182)<br>0.06 | (0.023)<br>0.007 | (0.17)<br>0.05 | (0.03)<br>0.01 |
| Roller | (0.3)<br>0.10 | (13.41)<br>4.29 | (0.65)<br>0.21 | (0.59)<br>0.19 | (0.87)<br>0.28 | (0.362)<br>0.12 | (0.067)<br>0.02 | (0.019)<br>0.01 | (0.05)<br>0.016 | (0.026)<br>0.008 |
| Paver | (0.007)<br>0.002 | (0.57)<br>0.18 | (0.001)<br>.00032 | (0.025)<br>0.008 | (0.023)<br>0.007 | (0.011)<br>0.004 | (0.002)<br>.0006 | (.0005)<br>.0002 | (0.001)<br>.00032 | (.00005)<br>.00001 |
| Jackhammer | | (2.04)<br>0.65 | | (0.897)<br>0.287 | | (.0006)<br>.0002 | | (.0005)<br>.00016 | | (.0085)<br>.0027 |
| Air Compressor | (0.011)<br>0.004 | (1.479)<br>0.47 | (0.002)<br>.0006 | (0.054)<br>0.017 | (0.018)<br>0.006 | (0.002)<br>.0006 | (0.002)<br>.0006 | (.0006)<br>.0002 | (0.001)<br>.0003 | (.00025)<br>.00008 |
| Water Truck | (9.53)<br>3.05 | (3.58)<br>1.145 | (0.351)<br>0.112 | (0.18)<br>0.057 | (0.43)<br>0.14 | (1.27)<br>0.41 | (0.015)<br>0.0048 | (0.09)<br>0.03 | (0.024)<br>0.008 | (0.14)<br>0.048 |

| Equipment | Total Exhaust Emissions at 100% Load in Tons | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | CO | | ROG | | $NO_X$ | | $SO_X$ | | $PM_{10}$ | |
| | D | G | D | G | D | G | D | G | D | G |
| Totals | 3.358 | 12.08 | 0.395 | 0.575 | 1.81 | 0.71 | 0.087 | 0.05 | 0.075 | 0.06 |
| Threshold in Tons/Year | 100 | | 25 | | 25 | | 25 | | 15 | |

Notes: ( ) = Emission Factors Used in lbs/hr
D = diesel, G = gasoline

Source: SCAQMD CEQA Handbook, Using Emission Factors from Tables A9-8-A and A9-8-B

As can be seen from the above, the levels expected to be produced by construction are well below significance thresholds. Thus, there are no significant impacts from exhaust emissions. However, there are general best management practices that apply to any operations, which are given below as mitigation.

Construction traffic will involve worker vehicle trips and truck trips. How the numbers of these have been derived is discussed under traffic/transportation impacts, in Section III.E. It is estimated that there would be 90 vehicle trips per day during the four-month construction period. Additionally, there will likely be another two months of work for septic system cleanout, at an estimated 40 vehicle trips per day (10 truck round-trips per day at PCE of 2 per truck).

Emissions from vehicle traffic related to the project are not analyzed in detail. The SCAQMD Handbook uses a threshold of approximately 2,900 trips per day before a thresholds of significance may be exceeded for mobile source emissions. It would not be expected that the above number of vehicle trips would be significant. However, several general mitigation measures are included below to address emissions from this source.

**Measures to control construction activity emission impacts:**

- Efficient scheduling of equipment use, with a phased construction schedule to reduce the number of units operating simultaneously
- Performing regular engine maintenance on all equipment
- Provision of local equipment storage areas so that equipment trips to sites can be reduced.
- Construction personnel will be encouraged to rideshare or use mass transit to reduce vehicle trips to site
- Shut down equipment when not in use for more than ½ hour
- Provide incentives for carpooling among construction employees

*3. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal state ambient air quality standards (including releasing emissions which exceed quantitative thresholds for ozone precursors)?*

No. The project will not cause a cumulative considerable net increase of any non-attainment pollutant (i.e., ozone and particulates for this area). Refer to above information.

*4. Would the project expose sensitive receptors to substantial pollutant concentrations?*

The project area has an elementary school within the Lenwood community and another school complex to the southeast of Agate Road. Both are part of the Barstow Unified School District. However, the school near

Agate is closed, but the building is still used for the County's Head-Start program. Construction activities may have a nonsignificant affect both of these locations, but these would be temporary and localized air pollutant effects that would be controlled by the fugitive dust mitigation measures outlined above.

*5. Would the project create objectionable odors affecting a substantial number of people?*

During the construction phase of the project, the activities producing the most odor would be repaving, which generates asphalt odors, and pumping the septic tanks. These odors would be temporary and limited in location. The sewage odor already occurs in the area due to excessive septic tank pumping and overflowing septic tanks. One effect of the project will be to eliminate this odor source in the future, except when in operation if there is a sewage spill or line break, i.e., an accident. Refer to the mitigation measures, "Measures to prevent or respond to sewage spills or line breaks," in Section III.Q.1. The short-term exposure to these odor sources is not forecast to create a significant objectionable odor impact.

## B. HYDROLOGY AND WATER QUALITY

*1. Would the project violate any water quality standards or waste discharge requirements?*

No. The project will transfer wastewater being disposed into groundwater to become new, more highly treated wastewater flows from the Barstow Water Reclamation Facility, which would then be treated and percolated to the groundwater at a different location. The existing groundwater contamination problems from bacteria and pathogens, nitrates and salts would thereby be eliminated. The wastewater would be treated along with other flows at the wastewater treatment facility and will not require any changes to the current Waste Discharge Order under which the plant operates.

*2. Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level?*

No. The project will not affect the local natural groundwater table. As described in the Geotechnical Study (Terra Geosciences, 1998), the perched groundwater table created by septic system disposal practices in the area is not associated with the natural groundwater table. Because the water is surfacing, it is not assumed to be contributing to groundwater recharge. Regardless, the project would take the same water and put it back into the Mojave River in a more highly treated state than currently occurs.

*3. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of a stream or river, in a manner which would result in substantial erosion or siltation onsite or offsite?*

There will be temporary impacts during the construction phase, in which very limited areas of surface drainage might be changed, especially in areas around excavations of trenches. Best management practices (BMPs) will be included in engineering specifications for the project. At a minimum, the following measures will be employed to minimize erosion or siltation.

**Measures to reduce erosion and siltation:**

- Excavation or grading activities will be suspended during periods of high winds or heavy rains.
- Excavations will be left open for as short of a time as possible.
- Construction site soils, where exposed, will be stabilized with hay bales or aggregate cover
- Stormwater will be diverted around active construction or staging areas, through use of barriers or temporary channels.

*4. Would the project substantially later the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite?*

There will be temporary impacts during the construction phase, in which surface drainage might be changed. Best management practices (BMPs) will be included in engineering specifications for the project. At a minimum, the following measures will be employed to minimize increases in the rate or amount of surface runoff.

**Measures to reduce surface runoff:**

- Excavation or grading activities will be suspended during periods of heavy rains.
- Excavations will be left open for as short of a time as possible.
- Barriers or temporary channels will be used around active construction or staging areas to direct surface runoff to existing catch basins or other similar structures and to drainage channels.
- Pumps will be made available should trenches fill with water. Water pumped will be directed to temporary storage facilities until sediment settles, then directed to existing drainage channels or catch basins.

*5. Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?*

There could be temporary impacts during construction. See response to Question 3 in Section III.C, which includes recommended mitigation measures.

*6. Would the project otherwise substantially degrade water quality?*

The project will generally be an improvement of water quality, by eliminating existing sources of groundwater contamination. However, a result of this system will be several miles of new sewer line and connections, which could present a potential for sewage spills. Such occurrences are already addressed as part of existing sewer service operations, but should be mentioned here. Thus, the following mitigation measure is incorporated into the project.

**Measures to prevent or respond to sewage spills:**

- The project will adhere to the operational procedures for prevention of sewage spills and cleanup and response procedures (contingency plan) that are already in existence for Barstow Water Reclamation Facility operations, as required under its Waste Discharge Order.
- Language will be added to such existing procedures in order to include this new project area where appropriate.

*7. Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?*

No. Although much of the project area is within a 100-year floodplain, the project does not propose new housing. The project only serves housing in existing developments, which are either built or already planned. Therefore, no impacts can be identified and no mitigation is required.

*8. Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows?*

No. The project will not involve the construction of new structures. Sewers would be placed below ground surface level where they would not impede or redirect flood flows. Therefore, no impacts can be identified and no mitigation is required.

*9. Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flood as a result of the failure of a levee or dam?*

No. The project serves housing in existing developments, which are either built or already planned. Although the project area is within the 100-year floodplain, the project has no potential to expose any new populations or structures to potential flood hazards other than those which already exist within the project area.

*10. Would the project cause inundation by seiche, tsunami, or mudflow?*

No. The project area is 70 miles inland from the Pacific Ocean at an elevation of over 2,200 feet. Due to the project area's distance from the ocean and elevation, there is no potential for a tsunami. The project area is not located near a large surface water body and there is no potential for inundation by seiche. The project area is in a relatively flat area with sandy soils, thus, the risk of mudflow is minimal.

## C. UTILITIES/SERVICE SYSTEMS

*1. Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?*

No. The project will deliver wastewater to the regional reclamation plant where it will be treated to standards established by the Regional Board. The proposed project will not require any changes in treatment at the Barstow Water Reclamation Facility.

*2. Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

No. The project will not require any changes in the facilities at the existing Barstow Water Reclamation Facility.

*3. Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

No. The project will result in no permanent new storm water drainage facilities or expansion of existing facilities. However, because this project will disturb approximately 19 acres of paved and unpaved surface (assuming a 15 feet wide trench over the 55,360 foot linear length of sewer line to be emplaced), temporary storm water management facilities may be required during construction, depending on the season of construction and location and timing of construction within the project area. Because this project site will exceed the threshold for a construction NPDES permit, the following mitigation measure will be implemented.

**Measures for storm water management and drainage facilities:**

- An NPDES construction stormwater permit will acquired through the State Water Resources Control Board for implementation through the Lahontan Regional Water Quality Control Board.
- Measures and facilities for storm water management during construction will be identified as part of this permit, and implementation thereof will occur as part of this project.
- A Stormwater Pollution Prevention Plan (SWPPP) will be prepared as part of this permit, and subsequently implemented during construction.
- All measures will cease and facilities will be removed at the end of construction.

*4. Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?*

After construction, the project will not create any demand for domestic water, nor affect water supplies to these existing developments. Therefore, no impact is identified.

*5. Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?*

The project will immediately result in wastewater from 599 households going to the Barstow Regional Water Reclamation Facility. At an estimated 225 gallons per day per household, this amounts to 0.135 MGD (million gallons per day) of new wastewater flows. The plant is currently operating at 62 percent capacity, or at 2.7 MGD of total 4.5 MGD capacity. This project would increase daily flows to 2.8 MGD in the foreseeable future, which is considered to be a nonsignificant impact. Similarly, when the other 199 lots which this project is designed to serve are developed in the future, these additional lots will only add another 0.1 MGD to flows to 2.9 MGD. Net reserve capacity at the reclamation facility will remain about 1.6 MGD.

*6. Would the project be served by a landfill(s) with sufficient permitted capacity to accommodate the project's solid waste disposal needs?*

The project will require the cleanout and closure of 599 septic systems. At an estimated 1,000 gallons per household, this would be 599,000 gallons of septage to be disposed. The Barstow Water Reclamation Facility does not take this type of waste, as it is not equipped to handle the solids loadings. This waste would be disposed of in the Barstow Landfill, which has the overall capacity to handle this waste. However, arrangements need to be made with County's landfill operator for phased delivery of this waste, i.e., over a period of time (Ron Daerr, p.c.). For planning purposes, it is assumed that a maximum 10,000 gallons per day could be cleaned out and delivered by the selected septic hauler(s) to the Barstow landfill, which would result in a minimum septic tank cleanout period of 60 days.

The project will also generate some construction-related waste, likely to consist of old pavement, concrete from septic systems, and miscellaneous subsurface materials. This waste would also be disposed of in the Barstow Landfill, which accepts construction and demolition waste. The County's Solid Waste Management Plan identifies more than adequate permitted disposal capacity at the Barstow landfill.

*7. Would the project comply with federal, state and local statutes and regulations related to solid waste?*

The solid waste to be generated by this project will be septage and construction debris, which are waste types accounted for in statutes and regulations and allowed to be disposed at the Barstow Landfill. Regarding San Bernardino County's and the City of Barstow's source reduction and recycling objectives, in which waste going to landfills is to be reduced by 50 percent from 1990 to 2010, this project will be a benefit in that it will eliminate continued septage disposal in the Landfill (septage from failing systems).

## D. LAND USE/PLANNING

*1. Would the project physically divide an established community?*

No. The project does not involve construction of new structures that would cause any physical divisions of any communities.

*2. Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?*

No. The project is in conformance with both the County of San Bernardino General Plan and the City of Barstow's General Plan. The County's General Plan for the Barstow Subregional Planning Area, under Policy LU-9, states that service connections are required for projects that are less than one mile away from sewer availability. Other policies generally promote clustered commercial development in this area. The City of Barstow's General Plan, under Sewer, has a Goal VI.7, "Coordinate efforts with other agencies to ensure that all property owners within Barstow's Sphere of Influence have adequate sewer and water facilities." The proposed project fully conforms with the applicable environmental policies.

*3. Would the project conflict with any applicable habitat conservation plan or natural community or conservation plan?*

The project area is within habitat for the federally-listed protected species, the desert tortoise. Both the Barstow General Plan natural resources element and County environmental review procedures under CEQA require that a survey be done by qualified biologists to determine if any ungraded/undisturbed property contain occupied desert tortoise habitat, or if a project could affect the species. Additionally, because this project is to be partially funded through EPA, it must meet U.S. Fish and Wildlife (FWS) requirements under the Endangered Species Act. The applicable habitat conservation plan is the "Desert Tortoise (Mojave Population) Recovery Plan", published in June 1994. The FWS has designated critical habitat for the desert tortoise within West Mojave Desert, and the proposed project is not located within designated critical habitat. The nearest critical habitat is about ten miles to the northwest and to the southeast. No other habitat, natural community or conservation plans are applicable to the project site. Please refer to the Biological Resources Section, IV.F.1, for the results of the biological survey and recommendations.

## E. TRANSPORTATION/TRAFFIC

*1. Would the project cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?*

Construction activities will result in an increase in traffic due to construction worker commuting and equipment and materials deliveries. It is anticipated that 25 construction workers will be involved at any given time. This would generate two trips per day, to and from the worksite, for each worker, or a minimum of 50 vehicle trips per day. Truck traffic is estimated to be 10 trucks per day delivering construction materials and equipment. Because trucks are less maneuverable, larger and accelerate slower, they occupy more space on a roadway and displace automobiles. To account for this, passenger car equivalents (PCEs) have been adopted for trucks. Each truck is considered to be the equivalent of 2 passenger cars, or having a PCE of 2. Therefore, truck traffic is anticipated to be 20 vehicles per day to and from the worksite, or 40 vehicle trips per day. Additionally, there will likely be another two months of work for septic system cleanout, at an estimated 40 vehicle trips per day (10 truck round-trips per day at PCE of 2 per truck).

Construction worker commuting of 50 vehicle trips per day and truck traffic of 40 vehicle trips per day result in a total of 90 vehicle trips per day. As described in the Affected Environment section of this report, Main Street in the project vicinity currently carries 10,401-16,400 vehicles per day. Lenwood Road at the intersection with Main Street, currently carries 4,351-10,400 vehicles per day. Thus, the anticipated construction traffic for this project should be insignificant in relation to current loads and capacity on these major routes, at less than 1% increase on Main Steet and approximately 2% increase on Lenwood Road for the short construction period. Long-term no increase in average daily traffic is forecast to occur from implementing the proposed project.

*2. Would the project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?*

No. See response above.

*3. Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?*

The project will not affect air traffic patterns. No impacts can be identified, therefore, no mitigation is required.

*4. Would the project substantially increase hazards due to a design feature (i.e., sharp curves or dangerous intersections) or incompatible uses (i.e., farm equipment)?*

The project will not result in any new physical design features or changes in land uses. However, construction activities will cause temporary and localized traffic hazards for automobiles, trucks, buses, pedestrians, and bicyclists. Therefore, some mitigation measures are required.

**Measures to reduce traffic impacts during construction:**

- The construction contractor will provide adequate traffic management resources, such as protective devices, flag persons, police assistance for traffic control, to maintain safe traffic flow on local streets at all times.
- The construction contractor will identify traffic hazards created by construction, such as rough road or potholes, freshly paved locations, and minimize total traffic and vehicle speed through such hazards.
- The construction contractor will ensure that no open trenches or traffic safety hazards will be left in roadways during period of time when construction personnel are not present, such as nighttime and weekends.
- The construction contractor will repair all roads adequately after emplacement of infrastructure improvements to ensure that traffic can move in the same manner as before construction.
- All of the above will be incorporated into a Transportation Management Plan to be prepared as part of construction specifications and approved by the County.

*5. Would the project result in inadequate emergency access?*

Permanently, no. However some provisions are needed to ensure emergency access during construction activities. See above and the discussion and "Measures to preserve emergency response preparedness" in Section Q.1.7.

*6. Would the project result in inadequate parking capacity?*

The project will not affect parking capacity in the project area.

*7. Would the project conflict with adopted policies, plans, or programs supporting alternative transportation (i.e., bus turnouts, bicycle racks)?*

The project should not conflict with such policies, plans or programs. The project area, especially on Main Street, is on a major bus route and a bicycle route. Impacts on existing bus and bicycle traffic need to be minimized during the construction phase. Refer to the mitigation measures previously listed in this section in No. 4.

## F. NATURAL RESOURCES

### 1. Biological Resources

*1. Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California department of Fish and Game or U.S. Fish and Wildlife Service?*

The proposed project will be located within the confines of existing road rights-of-way where no natural resources remain. However, the general area was determined to be suitable habitat for the desert tortoise as noted in the Affected Environment discussion. A detailed field survey for the desert tortoise was conducted by Tom Dodson & Associates' biologists and tortoise field survey personnel in accordance with survey protocols established by the U. S. Fish and Wildlife Service and as authorized under a Quality Assurance Project Plan approved by the Environmental Protection Agency. A copy of the Field Survey Report is provided as Appendix 2 to this document. No desert tortoise were discovered within the project area (including all areas of construction disturbance) and no tortoise were found within the Zone of Influence from which a tortoise might be expected to enter the construction project. Given that there will be no loss of habitat that can be considered suitable for the desert tortoise, no adverse impacts are forecast to occur to this species or its habitat from implementation of the proposed project. The survey findings will be submitted to the Service for review and concurrence that the tortoise will not experience adverse effects if the project is implemented as proposed. One mitigation measure will be implemented to ensure that the desert tortoise will not be adversely impacted by the proposed project.

**Measure to ensure no tortoise are adversely impacted by the proposed project:**

- Within 48-hours prior to initiating construction, a final survey of the pipeline alignment and immediate adjacent potential habitat will be conducted. If any tortoise are found in the vicinity of the project site, construction will be deferred and consultation will be initiated with the U. S. Fish and Wildlife Service and California Department of Fish and Game.

*2. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game of U.S. Fish and Wildlife Service?*

There are no riparian or other sensitive natural communities located within the project area of potential effect. No potential exists for this project to adversely impact or conflict with natural communities identified in any local or regional plans, policies or regulations established by the California Department of Fish and Game or the U. S. Fish and Wildlife Service. No mitigation is required.

*3. Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal filling, hydrological interruption, or other means?*

There are no wetlands to be impacted by the project. Area conditions are those of desert, so no adverse impact to such resources is possible.

*4. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*

The project site is located within a suburban area on the edge of the City of Barstow. There is one known wildlife movement corridor within the project area and that is the Mojave River channel. The proposed project will result in the installation of a subsurface sewer line within the existing road right-of-way that presently crosses the Mojave River channel. Due to its location below the ground surface, the proposed

project has no potential to cause any adverse effect on the wildlife movement corridor associated with the Mojave River channel. No mitigation is required.

*5. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

There are no locally protected biological resources within the project's area of potential effect. No potential exists for the project to adversely impact any locally protected resources or conflict with local policies regarding such resources. No mitigation is required.

*6. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?*

The only conservation plan that affects this region is the desert tortoise Critical Habitat designated as part of the tortoise recovery plan. The project site is not designated as Critical Habitat and has no potential to conflict with the provisions of the tortoise recovery plan. No mitigation is required.

2. Geology and Soils

*1. Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Strong seismic ground shaking? Seismic-related ground failure, including liquefaction? Landslides?*

The project serves existing development, such that no new populations other than those planned for the area would be exposed to the above hazards. The project will emplace sewer lines in an area near (approximately one mile from) the Lenwood Fault, a delineated Alquist-Priolo Earthquake Fault. There is another delineated unnamed fault in the northeastern portion of the Lenwood community. Although there is no evidence that these faults are active, they could be potentially active (Terra Geosciences, 1998). The project area is not an identified liquefaction zone, but the perched groundwater table condition within the Lenwood community could make it susceptible to liquefaction should an earthquake occur. The proposed project will remove one soure of water contributing to the perched groundwater table and thereby reduce the potential for liquefaction over the long-term. There is no potential for landslides, as the topography of the project area is relatively flat.

Based on the above, some mitigation measures will be implemented. These are the general measures applying to any similar project in southern California.

**Measures to prevent or reduce seismic impacts:**

- Construction specifications for sewer line installation and connections will contain the appropriate seismic safety features and best management practices.
- The existing emergency response and contingency plans, i.e., those sections related to earthquake occurrence, of Barstow's wastewater system operations will include these new structures and locations.

*2. Would the project result in substantial soil erosion or the loss of topsoil?*

Construction activities will result in excavation and replacement of approximately 307,555 cubic yards of soil (assuming that trenches are 15 ft. wide and 10 feet deep, for 55,360 linear feet). Thus, soil erosion, through both wind erosion (fugitive dust generation) and water erosion (stormwater runoff) can occur. Appropriate mitigation measures and best management practices will be employed during construction to minimize these effects, as discussed in Sections III.A.2 (fugitive dust control), III.B.2 (erosion and siltation control) and III.C.3 (stormwater management). With implementation of these measures, no substantial soil erosion is

forecast to occur. Note that the project will occupy an area where topsoil has already been altered due to historic road construction. The compacted soil will be trenched and the soil will be replaced. No loss of topsoil is forecast to occur from implementing the proposed project.

*3. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction or collapse?*

The project is located in an area of sandy soils, which are generally unstable, i.e., non-cohesive. Construction will occur in localized and contained areas such that adjacent areas should not be affected. Certain construction practices will minimize impacts, as given below and also described under other mitigation measures (particularly Section IV.B.3).

**Measures to prevent or reduce soil instability during construction:**

- Construction specifications will include appropriate measures for stabilizing excavations.
- Trenches will remain open for as short a time as possible.
- Soils, where exposed, will be stabilized with hay bales or aggregate cover.
- Construction specifications will identify proper compaction for backfilled soils.

*4. Would the project be located on expansive soil, as defined in Table 18 1-B of the Uniform Building Code (1994), creating substantial risks to life or property?*

No. Soils in the project area are sandy types, which have low shrink-swell potential, and not clays which would be expansive.

*5. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?*

Originally, these developments were approved for use of septic systems. However, as supported by the Geotechnical Study (Terra Geosciences, 1998) for this project, these systems are failing due to a groundwater situation previously unknown. Since the project itself is to provide connections to sewer service and to close out the existing septic systems, there is no impact under this particular issue.

3. Mineral Resources

*1. Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?*

No. The construction activity will not be conducted in the identified resource area of the Mojave River corridor for aggregate materials, as described in the Affected Environment section of this report. Most activity will take place a mile away to the south. There will be construction for sewer line emplacement on Agate Road, which is one-quarter mile south of the Mojave River and across the Mojave River channel along Lenwood Road. However, the new sewer line will occur within an existing transportation corridor across the channel and no incremental or cumulative loss of mineral resources will result from implementing the proposed project.

*2. Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?*

No. See the discussion above.

4. Visual Resources/Aesthetics

*1. Would the project have a substantial adverse effect on a scenic vista?*

No. The project will not change land uses, or affect the existing scenic views from the project area or visual aspects of the area. The construction activities will be temporary and localized, and in line with other already occurring facilities and activities in the area (transportation, industrial and commercial operations).

*2. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?*

Construction activities will directly impact over a mile length, or 5,750 feet, of Main Street. This part of Main Street does not have visual/aesthetic resources, so no potential exists to adversely impact scenic resources from implementing the proposed project. No mitigation is required.

*3. Would the project substantially degrade the existing visual character or quality of the site and its surroundings?*

No. As discussed in the Affected Environment section of this document, the project area does not have visual/aesthetic resources, due to being in a truck and rail transportation corridor and a commercial/industrial use zone. The construction activities are temporary and will not permanently result in any visual change to the area or its surroundings.

*4. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*

No. The construction activities are not forecast to extend past sunset and no permanent lighting is associated with the subsurface sewer being installed by the project. No light or glare impacts are forecast to occur and no mitigation is required.

G. POPULATION AND HOUSING

*1. Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?*

No. The project is intended only to provide and/or improve sewer services for existing developments. Although some of the lots are still vacant in these developments, they all have been included in previous plans.

*2. Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?*

No. The project does not involve changing existing housing in these developments. Environmental justice issues are designed to ensure consideration of any disproportionately high or adverse human health or environmental effects of actions on minority populations or low-income populations. The median household income of the population of the project area qualifies it as a low-income community. The proposed project is the connection of the community residences and vacant parcels to the City of Barstow wastewater reclamation facility. This will involve installation of sewer collection and transmission lines throughout the project area. This short-term construction effort will result in removal of residential wastewater from the project area, where most of it is currently treated with subsurface septic tank-leach line systems, to the treatment plant. By implementing this project, existing potential health hazards will be removed and the potential exposure to public health risks will be eliminated for this community.

Thus, this project will result in a net environmental benefit to this low income community, not any long-term, permanent adverse impacts. The construction related impacts identified in this IS/EA are not disproportionate impacts to the community relative to any other community which would be sewered and connected to a wastewater reclamation facility. Therefore, implementation of the proposed project is not forecast to cause or expose the local low-income residents to any adverse environmental justice issues.

*3. Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?*

No. See discussions above.

## H. CONSTRUCTION

Construction impacts and related mitigation measures are described in various parts of this Section III. One construction issue has not been addressed, that of emplacement of sewer line under the BNSF railroad tracks, just south of Jasper Rd. and east of Cedar Rd., on a line north from Main St. if Tortoise Rd. continued. There are several possible methods of implementing this construction. However, activities must ensure that rail traffic or facilities are not affected by this project. Therefore, the following is recommended.

**Measures to prevent or reduce impacts on BNSF railroad operations:**

- Methods of construction for sewer line emplacement under the tracks will be identified and coordinated through appropriate agencies and the railroad.
- Construction specifications will include measures to ensure that rail traffic and operations will not be adversely affected.

## I. ENERGY ISSUES

Overall, the project will reduce energy consumption by switching a pumped sewage system from the area to a gravity-flow system. There will be energy consumed from commercially available sources (petroleum products and energy consumed in manufacturing sewers and other equipment) during construction activities, which is considered to be minimal due to the small number of pieces of equipment to be used and the limited time of the project.

## J. COASTAL ZONE MANAGEMENT ACT

There are no identified impacts, as the project is not located in any coastal zone management area.

## K. CULTURAL RESOURCES

*1. Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?*

The cultural resources survey (Appendix 1) examined potential cultural resources within the area of potential effect (APE) and concluded that the physical features of the two sites located within the APE are considered to be non-contributing elements to their historic significance. The findings concluded that these features require no further consideration in the Section 106 process, i.e. no historic properties will be affected by the proposed undertaking. To address subsurface resources that may be unearthed during construction, the following measures will be implemented:

**Measures to reduce impacts on cultural resources unearthed during construction:**

- If any archaeological or historical resources are encountered during trenching for sewer installation, all ground disturbing activities in the vicinity of the discovery shall be terminated

immediately and the County Museum shall be contacted for consultation and advice. The County shall provide adequate funding to collect, curate and report on these resources if they merit such management based on review by the Museum's qualified personnel.

- If any human remains are encountered during initial grading activities, all ground disturbing activities in the vicinity of the discovery shall be terminated immediately, and the County Coroner's office shall be contacted to arrange for management of such remains.

Implementation of the above measures can reduce potential impacts to potential unidentified, subsurface cultural resources to a level of nonsignificance.

*2. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?*

No. See the discussion above.

*3. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

The project area consists of relatively young, wind deposited sands and sandy loam and the potential for encountering paleontological resources at this location is considered low to negligible. No mitigation is required based on the type of sediments underlying the project sewer alignment and their degree of historic disturbance.

*4. Would the project disturb any human remains, including those interred outside of formal cemeteries?*

No. See the discussions above.

## L. WILD AND SCENIC RIVERS

The Wild and Scenic Rivers Act does not apply to this project.

## M. ENDANGERED SPECIES

Refer to questions and answers in Sections III.F.1 and IV.F.1.

## N. FLOODPLAIN MANAGEMENT AND PROTECTION OF WETLANDS

Refer to questions and answers in Sections III.B. and III.F.1.

## O. FARMLAND PROTECTION

*1. Would the project convert prime farmland, unique farmland, or farmland of statewide importance farmland, as shown on the maps prepared pursuant to the farmland mapping and monitoring program of the California Resources Agency, to non-agricultural use?*

No. No part of the project area is currently in agricultural use, nor has there been any recent agriculture use. The project is not located on lands designated for agricultural use. Soils are mostly supportive of desert vegetation. Regarding agriculture, the soils types could support rangeland grazing and irrigated crops, but they have not historically been known to be used for this purpose..

*2. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?*

The City of Barstow has no agricultural use zones in its existing zoning for locations around the project area. The County General Plan has not identified this particular area for agricultural use. Thus, there are no potential conflicts.

*3. Would the project involve other changes in the existing environment, which due to their location or nature, could result in conversion of Farmland, to non-agricultural use?*

No. The project is only providing sewer service to existing residential area developments. The vacant areas bordering the new sewer lines are not currently agricultural, and are not planned for agricultural uses.

## P. COASTAL BARRIER RESOURCES

There are no such resources to be affected by the proposed project. The project area is 70 miles inland from the California coast.

## Q. OTHER IMPACT ISSUES

### 1. Hazards and Hazardous Materials

*1. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

Once the system is constructed, the transport of sewage will be completely contained such that there should be no exposure of the public or the environment. It is considered that there is no impact from this project, as all residences, businesses and schools have some form of sewage disposal already. This project should function to reduce hazards, as the existing failing septic systems in the Lenwood community are releasing sewage into the environment and into yards where there might be potential human exposure. For a discussion of septage disposal, please refer to Section C.6 of this document

*2. Would the project create a significant hazard to the public or the environmental through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?*

The project will result in raw sewage being passed through new sewer lines in the project area. Should sewer lines break, pathogens and gases could be released. There is mitigation already in place for the City of Barstow's wastewater system operations in existing emergency operations and contingency plans. However, these new locations need to be added to the existing plans. Regarding the potential for an accidental spill of petroleum products during construction, mitigation is also identified for this contingency. Therefore, the following mitigation measures will apply.

**Measures to prevent or respond to accidental spills or sewage line breaks:**

- The project will adhere to the operational procedures for prevention of sewage spills and cleanup and response procedures (contingency plan) that are already in existence for Barstow Water Reclamation Facility operations, as required under its Waste Discharge Order.
- Language will be added to such existing procedures in order to include this new project area where appropriate.
- All spills or leakage of petroleum products during construction activities shall be remediated in compliance with applicable state and local regulations regarding cleanup and disposal of the contaminant released. The contaminated waste shall be collected and disposed of at an

appropriately licensed disposal or treatment facility. This measure shall be incorporated into the required Stormwater Pollution Prevention Plan (SWPPP) required for the proposed project.

With implementation of these measures potential exposures to accidental releases of hazardous materials can be managed at a level of nonsignificant impact on the area's human population and environment.

*3. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

The project area has an elementary school within the Lenwood community and another school complex to the southeast of Agate Road. Both are part of the Barstow Unified School District. However, the school near Agate is closed, but the building is still used for the County's Head-Start program. Construction activities might affect both of these locations through accidental releases of petroleum products during construction and sewage after the sewers are installed. The potential for such releases is controlled by the measures outlined below (see discussion under the following issue) and by the spill contingency plan implemented by the Barstow Water Reclamation Facility.

*4. Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?*

The project area is located along the western Barstow Main Street commercial and industrial corridor and the Lenwood Road/Main Street intersection, and also the BNSF railroad corridor. There are two sites listed in the California Department of Toxic Substances Control (DTSC) database, at 25513 and 24645 Main Street. However, there may be several other sites, i.e., sites permitted to handle hazardous materials as well as those containing underground fuel tanks, in the project area on other lists (p.c., Elizabeth Parmenter, Hazardous Materials Div. of County of San Bernardino Fire Dept.). These sites would not affect the project; rather, project activities could affect these sites. Therefore, it will be important to ensure that these sites are not disturbed by construction activities involving the emplacement of the sewer lines or by location of the sewer lines themselves.

Since hazardous materials site operations and permit status come from several regulatory agency lists that frequently change, the following mitigation measures include a requirement for a more detailed records search and communication with site owners and regulatory agencies closer to project implementation.

**Measures to address hazardous materials sites in project area:**

- The construction contractor will conduct a detailed records search for hazardous materials sites in the project area prior to construction.
- The construction contractor will communicate with site owners and regulatory agencies on construction locations and activities prior to construction.
- The construction contractor will identify all underground and aboveground features and activities that are on such sites that might be affected by construction and make provisions to avoid or accommodate them.

These measures will be adequate to ensure that any existing hazardous sites will not cause significant impacts during construction.

*5. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?*

No. The project area is not within two miles of any existing or proposed public airport that could be affected.

*6. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?*

No. The project area is not near any existing private airstrip that could be affected.

*7. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

Lenwood Road and Main Street are identified as major truck routes in which hazardous materials may be transported. The BNSF rail line also may carry such materials. The Barstow General Plan indicates that rail or truck accidents and spills are medium to high risks, meaning that more than local services may be needed to respond to emergencies. The fire station (Station 364) on Paris Avenue in the Lenwood community is the nearest local service to the BNSF rail line and the Main Street and Lenwood Road corridors. However, the fire station (Station 361) on Barstow Road houses the hazardous materials response team and equipment. This fire station is approximately five miles to the east of the project area. The nearest hospital is located in this vicinity, additionally.

The project area is not located on or near designated evacuation routes, such that construction activities would not impair use of such routes if needed. The Barstow General Plan (1997 Update) shows the nearest evacuation routes as SR-58 and the I-15.

The construction activities for the project will occur in the rights-of-way of both Lenwood Road and Main Street and, thus, could temporarily affect the major routes and access for emergency response. Mitigation is recommended as follows to reduce this impact to a level of nonsignificance.

**Measures to preserve emergency response preparedness:**

- Ensure that construction activities do not at any time block access from the fire station (Station 364) on Paris Avenue.
- Ensure that construction activities do not affect ability to travel on Main Street, Lenwood Road or any other road, for hazardous materials response and hospital services teams passing through the project area.

*8. Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?*

The project will occur in existing developed areas, such that no new populations or structures other than those already existing or approved will be affected. There are adjacent desert areas, where fires could occur, but they do not contain the heavy fuel loads that could cause damage to adjacent structures. Also, these areas are separated from the project area by paved or dirt roads. They are not identified as fire hazard areas and no potential for significant wildland fire hazards is forecast to result from implementing the proposed project.

2. Noise

*1. Would the project result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

Yes. Construction activities will increase noise levels both in the residential areas and in the commercial/industrial zones adjacent to these areas. However, as discussed in the Affected Environmental Section, this particular area is subjected to excessive noise from existing and projected traffic levels (automobile, truck and rail).

The construction activities needed for this project will involve the use of certain noise-generating construction equipment. The ranges of noise that are described as follows are from U.S. Environmental Protection data. Breaking up existing pavement for trenches could require use of jack hammers and rock drills, or pile drivers, which produce 82-105 dB at 50 feet distance. Compacters, front loaders, backhoes, scrapers, graders and pavers produce 72-95 dB at 50 feet distance. Trucks typically produce 82-93 dB at 50 feet distance. For comparison, rail locomotives, as commonly going through the area on the BNSF line, produce more than 80 dB at 100 feet distance.

The Barstow General Plan uses the noise standards of the California Department of Health Services. The exterior CNEL is to be no more than 65 dB for residential, commercial, industrial, institutional and open space land uses, all of which are in the project area. The interior CNEL ranges from 45-65 dB for varying uses. Levels above these are conditionally allowed with mitigation measures incorporated, as for construction activities.

Although only the construction along Lenwood Road is technically within the Barstow General Planning area, the General Plan policy should be followed, which simply states, "The City shall implement mitigation techniques for all construction where noise levels exceed compatible use standards" (Policy III.3.3).

**Mitigation measures to reduce construction noise impacts:**

- Construction will be limited to the hours of 7a.m. to 7 p.m. on weekdays, and between 9 a.m. and 6 p.m. on Saturday, and will not occur on Sundays or federal holidays.
- All construction vehicles and fixed or mobile equipment will be equipped with properly operating and maintained mufflers.
- All employees that will be exposed to noise levels greater than 75 dB over an eight hour period will be provided with adequate hearing protection devices to ensure no hearing damage will result from construction activities.
- If equipment is being used that can cause hearing damage at adjacent noise receptor locations (distance attenuation will be taken into account), portable noise barriers will be installed that are demonstrated to be adequate to reduce noise levels at receptor locations below hearing damage thresholds.

Implementation of these measures will be sufficient to reduce potential construction noise impacts to a level of nonsignificance.

*2. Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?*

Yes, but the impacts can be mitigated to a nonsignificant level. See response to question 1.

*3. Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?*

No. There should be no operational noise impacts due to this project. There may be a noise reduction in that a sewage pumping facility will no longer be necessary, as the system will be switched to gravity flow.

*4. Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?*

Yes. See response to question 1.

*5. For a project located within an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport of public use airport, would the project expose people residing or working in the project area to excessive noise levels?*

No. There are no public airports existing or planned within two miles of the project area.

*6. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?*

No. There are no private airstrips existing near the project area that would be affected.

3. Public Services

*Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: Fire protection? Police protection? Schools? Parks? Other public facilities?*

There will be no need for new or physically altered governmental facilities as part of this project. However, there may be a temporary demand for some services during the construction phase. There is a fire station able to serve the project during construction, located on Paris Avenue in the Lenwood community. There may be a need for police services or signs for traffic control on Main Street and Lenwood Road while construction takes place on sections of those roads, but this should not be above and beyond normal requests for such services. No mitigation is required to ensure that such potential demands remain below a level of significant impact.

4. Recreation

*1. Would the project increase the use of existing neighborhood and regional parks or other recreation facilities such that substantial physical deterioration of the facility would occur or be accelerated?*

No. The project would not affect the use of the neighborhood parks, Lenwood Park or Jasper Park. The project provides sewer services to the existing developments, which these parks already serve.

*2. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?*

No. See answer above.

# V. SUMMARY OF MITIGATION MEASURES TO BE INCORPORATED AS PART OF THIS PROJECT

**Measures to control fugitive dust:**

- Water will be used for short-term surface stabilization.
- Chemicals or vegetation will be used for surface stabilization upon completion of grading activities if subsequent site developed is delayed.
- Trackout on paved roads will be minimized.
- There will be rapid cleanup of project-related trackout or spills on paved roads.
- Haul trucks will be covered.
- Grading and other soil movement activities will be minimized when winds exceed 30 mph.

**Measures to control construction activity emission impacts:**

- Efficient scheduling of equipment use, with a phased construction schedule to reduce the number of units operating simultaneously
- Performing regular engine maintenance on all equipment
- Provision of local equipment storage areas so that equipment trips to sites can be reduced.
- Construction personnel will be encouraged to rideshare or use mass transit to reduce vehicle trips to site.
- Shut down equipment when not in use for more than 1/2 hour
- Provide incentives for carpooling among construction employees

**Measures to reduce erosion and siltation:**

- Excavation or grading activities will be suspended during periods of high winds or heavy rains.
- Excavations will be left open for as short of a time as possible.
- Construction site soils, where exposed, will be stabilized with hay bales or aggregate cover
- Stormwater will be diverted around active construction or staging areas, through use of barriers or temporary channels.

**Measures to reduce surface runoff:**

- Excavation or grading activities will be suspended during periods of heavy rains.
- Excavations will be left open for as short of a time as possible.
- Barriers or temporary channels will be used around active construction or staging areas to direct surface runoff to existing catchbasins or other similar structures and to drainage channels.
- Pumps will be made available should trenches fill with water. Water pumped will be directed to temporary storage facilities until sediment settles, then directed to existing drainage channels or catchbasins.

**Measures to prevent or respond to sewage spills:**

- The project will adhere to the operational procedures for prevention of sewage spills and cleanup and response procedures (contingency plan) that are already in existence for Barstow Water Reclamation Facility operations, as required under its Waste Discharge Order.
- Language will be added to such existing procedures in order to include this new project area where appropriate.

**Measures for storm water management and drainage facilities:**

- An NPDES construction stormwater permit will acquired through the Lahontan Regional Water Quality Control Board.

- Measures and facilities for storm water management during construction will be identified as part of this permit, and implementation thereof will occur as part of this project.
- A Stormwater Pollution Prevention Plan will be prepared as part of this permit, and subsequently implemented during construction.
- All measures will cease and facilities closed at the end of construction.

**Measure to ensure conformance with habitat conservation plans for the desert tortoise:**

- Within 48-hours prior to initiating construction, a final survey of the pipeline alignment and immediate adjacent potential habitat will be conducted. If any tortoise are found in the vicinity of the project site, construction will be deferred and consultation will be initiated with the U. S. Fish and Wildlife Service and California Department of Fish and Game.

**Measures to reduce traffic impacts during construction:**

- The construction contractor will provide adequate traffic management resources, such as protective devices, flag persons, police assistance for traffic control, to maintain safe traffic flow on local streets at all times.
- The construction contractor will identify traffic hazards created by construction, such as rough road or potholes, freshly paved locations, and minimize total traffic and vehicle speeds through such hazards.
- The construction contractor will ensure that no open trenches or traffic safety hazards will be left in roadways during period of time when construction personnel are not present, such at nighttime and weekends.
- The construction contractor will repair all roads adequately after emplacement of infrastructure improvements to ensure that traffic can move in the same manner as before construction.
- All of the above will be incorporated into a Transportation Management Plan to be prepared as part of construction specifications and approved by the County.

**Measures to prevent or reduce seismic impacts:**

- Construction specifications for sewer line emplacement and connections will contain the appropriate seismic safety features and best management practices.
- The existing emergency response and contingency plans, i.e., those sections related to earthquake occurrence, of Barstow's wastewater system operations will include these new structures and locations.

**Measures to prevent or reduce soil instability during construction:**

- Construction specifications will include appropriate measures for stabilizing excavations.
- Trenches will remain open for as short a time as possible.
- Soils, where exposed, will be stabilized with hay bales or aggregate cover.
- Construction specifications will identify proper compaction for backfilled soils.

**Measures to prevent or reduce impacts on BNSF railroad operations:**

- Methods of construction for sewer line emplacement under the tracks will be identified and coordinated through appropriate agencies and the railroad.
- Construction specifications will include measures to ensure that rail traffic and operations will not be affected.

**Measures to reduce impacts on cultural resources unearthed during construction:**

- If any archaeological or historical resources are encountered during trenching for sewer installation, all ground disturbing activities in the vicinity of the discovery shall be terminated

immediately and the County Museum shall be contacted for consultation and advice. The County shall provide adequate funding to collect, curate and report on these resources if they merit such management based on review by the Museum's qualified personnel.

- If any human remains are encountered during initial grading activities, all ground disturbing activities in the vicinity of the discovery shall be terminated immediately, and the County Coroner's office shall be contacted to arrange for management of such remains.

**Measures to prevent or respond to accidental spills or sewage line breaks:**

- The project will adhere to the operational procedures for prevention of sewage spills and cleanup and response procedures (contingency plan) that are already in existence for Barstow Water Reclamation Facility operations, as required under its Waste Discharge Order.
- Language will be added to such existing procedures in order to include this new project area where appropriate..
- All spills or leakage of petroleum products during construction activities shall be remediated in compliance with applicable state and local regulations regarding cleanup and disposal of the contaminant released. The contaminated waste shall be collected and disposed of at an appropriately licensed disposal or treatment facility. This measure shall be incorporated into the required Stormwater Pollution Prevention Plan (SWPPP) required for the proposed project.

**Measures to address hazardous materials sites in project area:**

- The construction contractor will conduct a detailed records search for hazardous materials sites in the project area prior to construction.
- The construction contractor will communicate with site owners and regulatory agencies on construction locations and activities prior to construction.
- The construction contractor will identify all underground and aboveground features and activities that are on such sites that might be affected by construction and make provisions to avoid or accommodate them.

**Measures to preserve emergency response preparedness:**

- Ensure that construction activities do not at any time block access from the fire station (Station 364) on Paris Avenue.
- Ensure that construction activities do not affect ability to travel on Main Street, Lenwood Road or any other road, for hazardous materials response and hospital services teams passing through the project area.

**Mitigation measures to reduce construction noise impacts:**

- Construction will be limited to the hours of 7a.m. to 7 p.m. on weekdays, and between 9 a.m. and 6 p.m. on Saturday, and will not occur on Sundays or federal holidays.
- All construction vehicles and fixed or mobile equipment will be equipped with properly operating and maintained mufflers.
- All employees that will be exposed to noise levels greater than 75 dB over an eight hour period will be provided with adequate hearing protection devices to ensure no hearing damage will result from construction activities.
- If equipment is being used than can cause hearing damage at adjacent noise receptor locations (distance attenuation will be taken into account), portable noise barriers will be installed that are demonstrated to be adequate to reduce noise levels at receptor locations below hearing damage thresholds.

**ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:**

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

| | | |
|---|---|---|
| “ Aesthetics | “ Agriculture Resources | ☒ Air Quality |
| ☒ Biological Resources | ☒ Cultural Resources | ☒ Geology / Soils |
| ☒ Hazards & Hazardous Materials | ☒ Hydrology / Water Quality | “ Land Use / Planning |
| “ Mineral Resources | ☒ Noise | “ Population / Housing |
| “ Public Services | “ Recreation | ☒ Transportation / Traffic |
| ☒ Utilities / Service Systems | “ Mandatory Findings of Significance | ☒ Construction |

**DETERMINATION:** (To be completed by the Lead Agency)

On the basis of this initial evaluation, the following finding is made:

“ The proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ Although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

“ The proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

“ The proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it may analyze only the effects that remain to be addressed.

“ Although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature (prepared by) Date

Signature Date

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **I.** | **AESTHETICS –** Would the project: | | | | |
| a. | Have a substantial adverse effect on a scenic vista? | “ | “ | “ | ☒ |
| b. | Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? | “ | ☒ | “ | “ |
| c. | Substantially degrade the existing visual character or quality of the site and its surroundings? | “ | “ | “ | ☒ |
| d. | Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | “ | “ | “ | ☒ |

SUBSTANTIATION (check __ if project is located within the viewshed of any Scenic Route listed in the General Plan):

**See Section III.F.4**

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **II.** | **AGRICULTURE RESOURCES** – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project: | | | | |
| a. | Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | “ | “ | “ | ■ |
| b. | Conflict with existing zoning for agricultural use, or a Williamson Act contract? | “ | “ | “ | ■ |
| c. | Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use? | “ | “ | “ | ■ |

SUBSTANTIATION (check ___ if project is located in the Important Farmlands Overlay):

**See Section III.O**

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **III.** | **AIR QUALITY** – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project: | | | | |
| a. | Conflict with or obstruct implementation of the applicable air quality plan? | “ | “ | “ | ☒ |
| b. | Violate any air quality standard or contribute substantially to an existing or projected air quality violation? | “ | ☒ | “ | “ |
| c. | Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? | “ | “ | “ | ☒ |
| d. | Expose sensitive receptors to substantial pollutant concentrations? | “ | ☒ | “ | “ |
| e. | Create objectionable odors affecting a substantial number of people? | “ | ☒ | “ | “ |

SUBSTANTIATION (discuss conformity with the South Coast Air Quality Management Plan, if applicable):

**See Section III.A**

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **IV.** | **BIOLOGICAL RESOURCES** – Would the project: | | | | |
| a. | Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? | “ | ☒ | “ | “ |
| b. | Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service? | “ | “ | “ | ☒ |
| c. | Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? | “ | “ | “ | ☒ |
| d. | Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? | “ | “ | “ | ☒ |
| e. | Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | “ | “ | “ | ☒ |
| f. | Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? | “ | “ | “ | ☒ |

SUBSTANTIATION (check if project is located in the Biological Resources Overlay ___ or contains habitat for any species listed in the California Natural Diversity Database ___):

**See Section III.M**

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **V.** | **CULTURAL RESOURCES** – Would the project: | | | | |
| a. | Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5? | “ | “ | ■ | “ |
| b. | Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? | “ | “ | ■ | “ |
| c. | Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | “ | “ | ■ | “ |
| d. | Disturb any human remains, including those interred outside of formal cemeteries? | “ | “ | ■ | “ |

SUBSTANTIATION (check if the project is located in the Cultural ___ or Paleontologic ___ Resources overlays or cite results of cultural resource review):

**See Section III.K**

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **VI.** | **GEOLOGY AND SOILS** – Would the project: | | | | |
| a. | Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: | | | | |
| | • Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. | “ | ☒ | “ | “ |
| | • Strong seismic ground shaking? | “ | ☒ | “ | “ |
| | • Seismic-related ground failure, including liquefaction? | “ | ☒ | “ | “ |
| | • Landslides? | “ | “ | “ | ☒ |
| b. | Result in substantial soil erosion or the loss of topsoil? | “ | ☒ | “ | “ |
| c. | Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction or collapse? | “ | ☒ | “ | “ |
| d. | Be located on expansive soil, as defined in Table 18 1-B of the Uniform Building Code (1994), creating substantial risks to life or property? | “ | “ | “ | ☒ |
| e. | Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water? | “ | “ | “ | ☒ |

SUBSTANTIATION (check ___ if project is located in the Geologic Hazards Overlay District):

**See Section III.F.2**

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **VII.** | **HAZARDS AND HAZARDOUS MATERIALS** – Would the project: | | | | |
| a. | Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? | “ | “ | “ | ☒ |
| b. | Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? | “ | ☒ | “ | “ |
| c. | Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | “ | “ | ☒ | “ |
| d. | Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? | “ | ☒ | “ | “ |
| e. | For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? | “ | “ | “ | ☒ |
| f. | For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? | “ | “ | “ | ☒ |
| g. | Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | “ | ☒ | “ | “ |
| h. | Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? | “ | “ | “ | ☒ |

SUBSTANTIATION:

**See Section III.Q.1**

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **VIII.** | **HYDROLOGY AND WATER QUALITY** – Would the project: | | | | |
| a. | Violate any water quality standards or waste discharge requirements? | “ | “ | “ | ☒ |
| b. | Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? | “ | “ | “ | ☒ |
| c. | Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation onsite or offsite? | “ | ☒ | “ | “ |
| d. | Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite? | “ | ☒ | “ | “ |
| e. | Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? | “ | ☒ | “ | “ |
| f. | Otherwise substantially degrade water quality? | “ | ☒ | “ | “ |
| g. | Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? | “ | “ | “ | ☒ |
| h. | Place within a 100-year flood hazard area structures which would impede or redirect flood flows? | “ | “ | “ | ☒ |
| i. | Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? | “ | “ | “ | ☒ |
| j. | Inundation by seiche, tsunami, or mudflow? | “ | “ | “ | ☒ |

SUBSTANTIATION:

**See Section III.A**

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **IX.** | **LAND USE AND PLANNING** – Would the project: | | | | |
| a. | Physically divide an established community? | “ | “ | “ | ☒ |
| b. | Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? | “ | “ | “ | ☒ |
| c. | Conflict with any applicable habitat conservation plan or natural community conservation plan? | “ | ☒ | “ | “ |

SUBSTANTIATION:

**See Sections III.D and IV.D**

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **X.** | **MINERAL RESOURCES** – Would the project: | | | | |
| a. | Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | " | " | " | ☒ |
| b. | Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? | " | " | " | ☒ |

SUBSTANTIATION (check ___ if project is located within the Mineral Resources Zone Overlay):

**See Section III.F.3**

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **XI.** | **NOISE** – Would the project result in: | | | | |
| a. | Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? | “ | ■ | “ | “ |
| b. | Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? | “ | ■ | “ | “ |
| c. | A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? | “ | “ | “ | ■ |
| d. | A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? | “ | ■ | “ | “ |
| e. | For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? | “ | “ | “ | ■ |
| f. | For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? | “ | “ | “ | ■ |

SUBSTANTIATION (check if the project is located in the Noise Hazard Overlay District __ or is subject to severe noise levels according to the General Plan Noise Element __):

**See Section III.Q.2**

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **XII.** | **POPULATION AND HOUSING** – Would the project: | | | | |
| a. | Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | “ | “ | “ | ■ |
| b. | Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? | “ | “ | “ | ■ |
| c. | Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? | “ | “ | “ | ■ |

SUBSTANTIATION:

**See Section III.G**

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| **XIII. PUBLIC SERVICES** – Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: | | | | |
| Fire protection? | “ | “ | “ | ■ |
| Police protection? | “ | “ | “ | ■ |
| Schools? | “ | “ | “ | ■ |
| Parks? | “ | “ | “ | ■ |
| Other public facilities? | “ | “ | “ | ■ |

SUBSTANTIATION:

**See Section III.Q.3**

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **XIV.** | **RECREATION –** | | | | |
| a. | Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | “ | “ | “ | ■ |
| b. | Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? | “ | “ | “ | ■ |

SUBSTANTIATION:

**See Section III.Q.4**

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **XV.** | **TRANSPORTATION/TRAFFIC** – Would the project: | | | | |
| a. | Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)? | “ | “ | ☒ | “ |
| b. | Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways? | “ | “ | ☒ | “ |
| c. | Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? | “ | “ | “ | ☒ |
| d. | Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | “ | ☒ | “ | “ |
| e. | Result in inadequate emergency access? | “ | ☒ | “ | “ |
| f. | Result in inadequate parking capacity? | “ | “ | “ | ☒ |
| g. | Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)? | “ | ☒ | “ | “ |

SUBSTANTIATION:

**See Section III.E**

| | | Potentially Significant Impact | Less than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|---|
| **XVI.** | **UTILITIES AND SERVICE SYSTEMS** – Would the project: | | | | |
| a. | Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? | “ | “ | “ | ☒ |
| b. | Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | “ | “ | “ | ☒ |
| c. | Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | “ | ☒ | “ | “ |
| d. | Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? | “ | “ | “ | ☒ |
| e. | Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | “ | “ | “ | ☒ |
| f. | Be served by a landfill(s) with sufficient permitted capacity to accommodate the project's solid waste disposal needs? | “ | “ | ☒ | “ |
| g. | Comply with federal, state, and local statutes and regulations related to solid waste? | “ | “ | “ | ☒ |

SUBSTANTIATION:

**See Section III.C**

| | Potentially Significant Impact | Less than Significant with Mitigation Incorporation | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| **XVII. MANDATORY FINDINGS OF SIGNIFICANCE –** | | | | |
| a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | “ | “ | ■ | “ |
| b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? | “ | “ | ■ | “ |
| c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? | “ | “ | “ | ■ |

SUBSTANTIATION:

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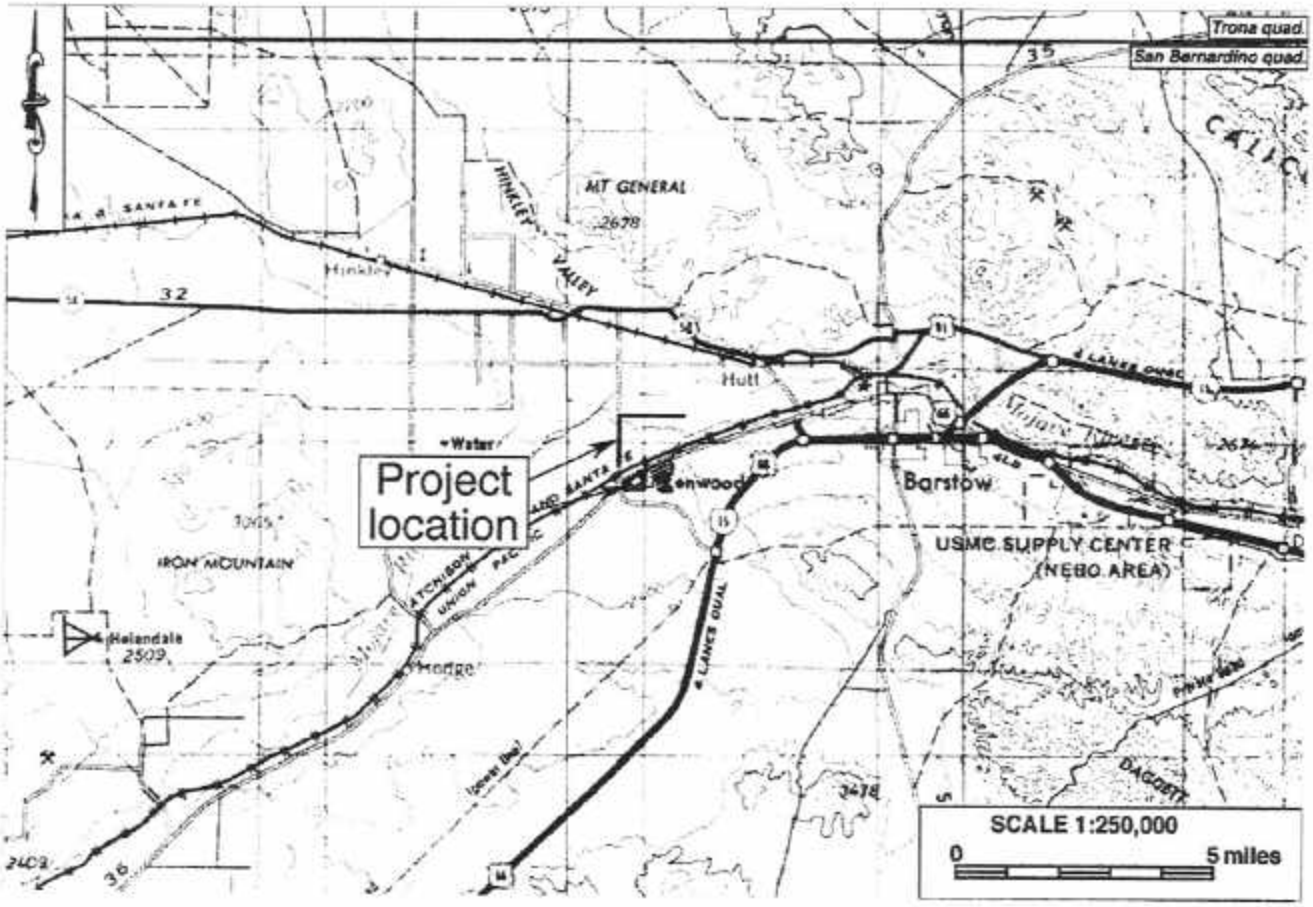


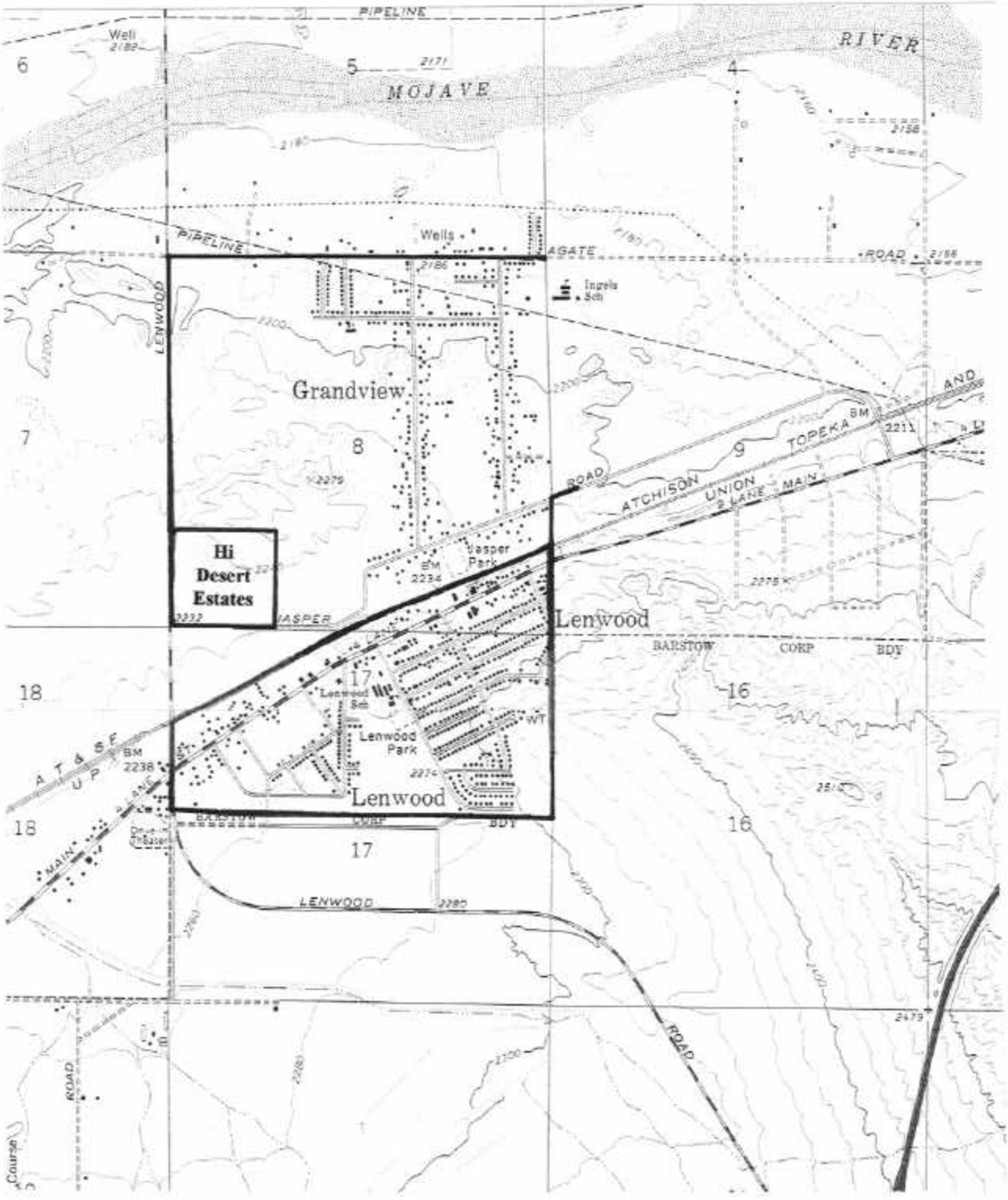

**REGIONAL LOCATION OF PROJECT**

Source: USGS – San Bernardino and Trona, California 1:250,000 Quadrangles

N

TOM DODSON & ASSOCIATES
Environmental Consultants

**FIGURE 1**



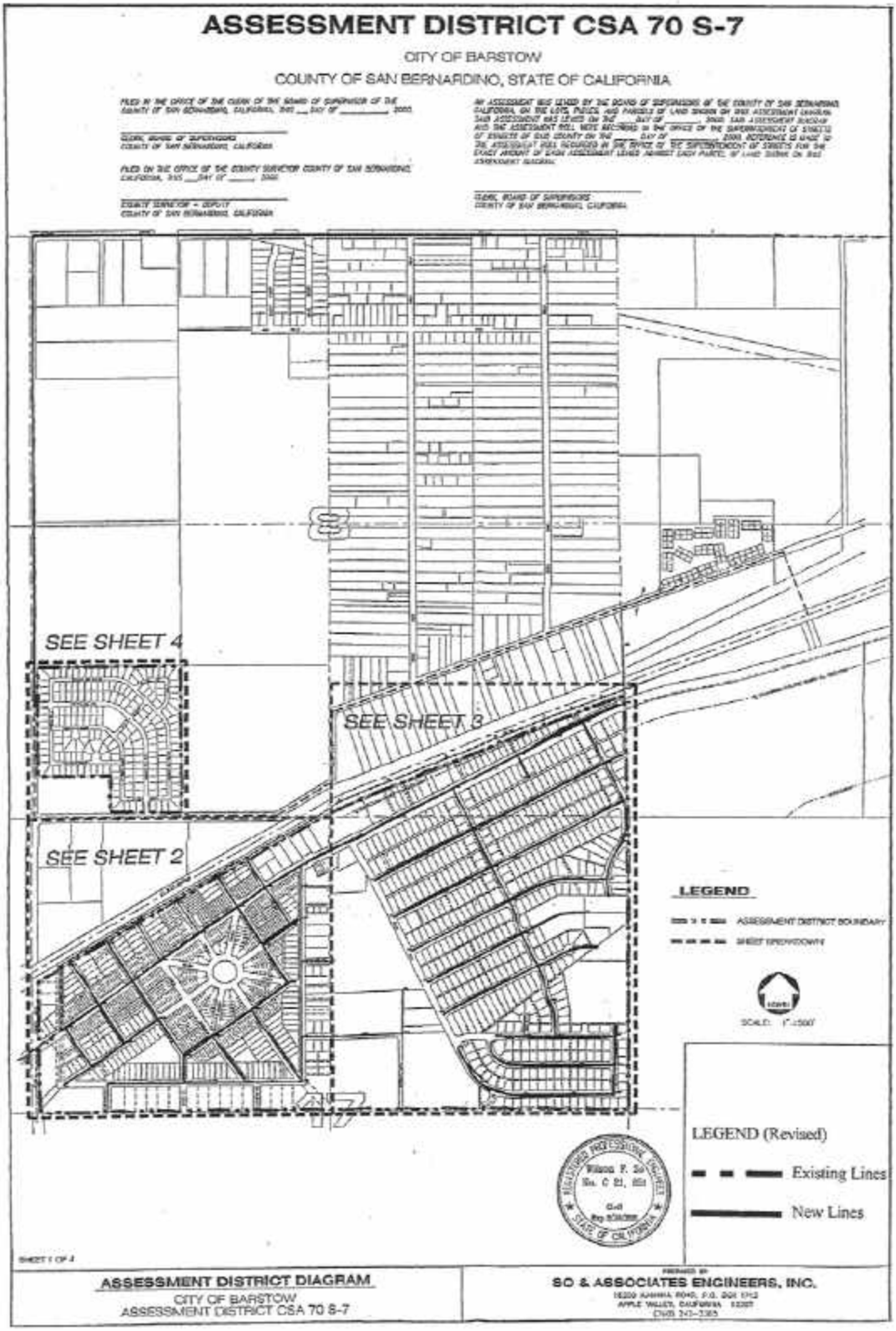

**PROJECT SITE**

Source: USGS – Barstow and Barstow SE, California 7.5 Minute Series Quadrangles

N

TOM DODSON & ASSOCIATES
Environmental Consultants

**FIGURE 2**



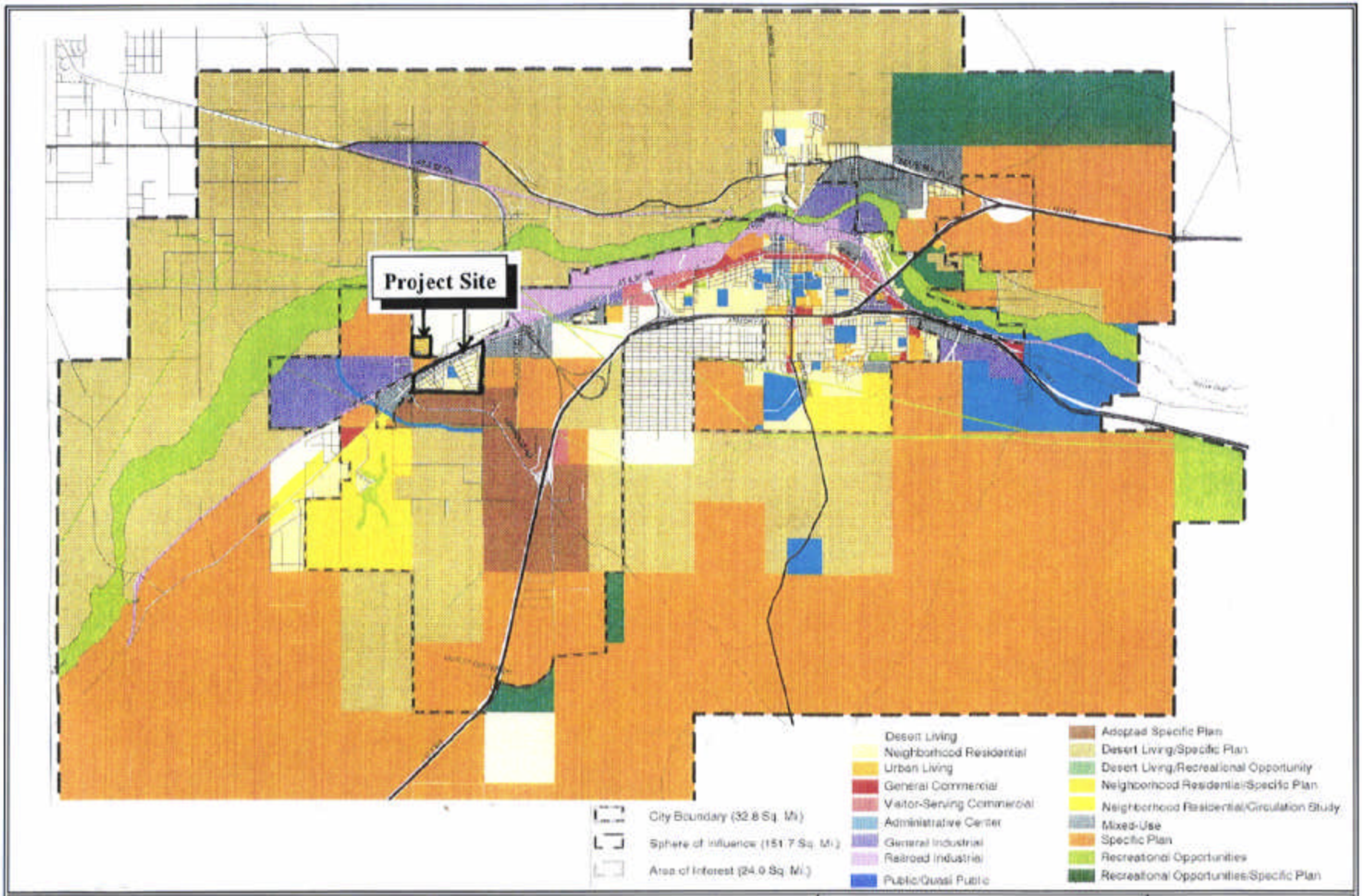

PLANNED SEWERLINES

Source: So & Associates Engineers, Inc.

N

TOM DODSON & ASSOCIATES
Environmental Consultants

FIGURE 3




**PROJECT SITE IN RELATION TO LAND USE**

Source: City of Barstow General Plan

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TOM DODSON & ASSOCIATES
Environmental Consultants

**FIGURE 4**

# APPENDIX 1

**IDENTIFICATION AND EVALUATION OF HISTORIC PROPERTIES**

# LENWOOD SEWER LINE INSTALLATION

**In the Community of Lenwood**
**San Bernardino County, California**

Submitted to:

Tom Dodson, President
Tom Dodson & Associates
2150 N. Arrowhead Avenue
San Bernardino, CA 92405

Submitted by:

Bruce Love, Principal
Bai "Tom" Tang, Historian
Michael Hogan, Archaeologist
Mariam Dahdul, Archaeologist
Daniel Ballester, Archaeologist
Adrián Sánchez Moreno, Archaeologist
CRM TECH
2411 Sunset Drive
Riverside, CA 92506

February 3, 2001

CRM TECH Contract #579
Approximately 9.25 linear miles
Barstow and Barstow SE, Calif., 7.5' quadrangles
Sections 8, 9, and 17, T9N R2W, San Bernardino Base Meridian

## MANAGEMENT SUMMARY

In October, 2000, CRM TECH performed a cultural resources study on the Area of Potential Effects (APE) of the Lenwood Sewer Line Installation Project in the unincorporated community of Lenwood, San Bernardino County, California. The APE is composed of the proposed rights-of-way of pipelines and auxiliary tie-ins, which are confined within existing public roadways traversing in and around Sections 8, 9, and 17, T9N R2W, San Bernardino Base Meridian. The study is a part of the environmental review process for the proposed undertaking, required by the Environmental Protection Agency (EPA) in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended.

The purpose of the study is to provide the EPA with the necessary information and analysis to determine whether the proposed undertaking would have any effects on historic properties that may exist in the APE, as mandated by Section 106. In order to identify such historic properties, CRM TECH pursued historical background research on the APE, initiated a historical/archaeological resources records search, and carried out a systematic field survey. During the course of the study, several previously recorded cultural resources were identified in close proximity to the APE, but only two of these, Sites CA-SBR-2910H and-6693H, representing the historic U.S. Route 66 and Santa Fe Railroad, respectively, were found to be present within the APE. Both of these sites have been determined to qualify as "historic properties," but the physical features of these sites within the APE are considered to be non-contributing elements to their historic significance. As such, these features require no further consideration in the Section 106 process.

Based on these findings, CRM TECH recommends that the EPA may reach a finding that *no historic properties will be affected by the proposed undertaking*. Pursuant to 36 CFR 800.4(d)(1), no further cultural resources investigation is recommended for the proposed undertaking unless project plans undergo such changes as to include areas not covered by this study. However, if buried cultural materials are uncovered during grading and/or other construction activities, all work in that area should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

## TABLE OF CONTENTS

**LIST OF FIGURES**

These figures are available upon request. Please contact Carolyn Yale, yale.carolyn@epa.gov, (415)-744-2016.

## INTRODUCTION

In October, 2000, CRM TECH performed a cultural resources study on the Area of Potential Effects (APE) of the Lenwood Sewer Line Installation Project in the unincorporated community of Lenwood, San Bernardino County, California (Fig. 1). The APE is composed of the proposed rights-of-way of pipelines and auxiliary tie-ins, which are confined almost entirely within existing public roadways traversing in and around Sections 8, 9, and 17, T9N R2W, San Bernardino Base Meridian (Fig. 2). The study is a part of the environmental review process for the proposed undertaking, required by the Environmental Protection Agency (EPA) in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended.

CRM TECH performed the current study to provide the EPA with the necessary information and analysis to determine whether the proposed undertaking would have any effects on historic properties that may exist in the APE, as mandated by Section 106. In order to identify such historic properties, CRM TECH pursued historical background research on the APE, initiated a historical/archaeological resources records search, and carried out a systematic field survey. The following report is a complete account of the methods and results of the various avenues of research, and the final conclusion of the study.

Figure 1. Project vicinity. (Based on USGS San Bernardino and Trona, Calif., 1:250,000 quadrangles [USGS 1969a; 1969b])

Figure 2. Area of Potential Effects. (Based on USGS Barstow, Barstow SE, Hinkley, and Hodge, Calif., 1:24,000 quadrangles [USGS 1993a; 1993b; 1993c; 1993d])

## SETTING

### CURRENT NATURAL SETTING

The Area of Potential Effects (APE) is located in the High Desert region of San Bernardino County, near the City of Barstow, within the community of Lenwood. It lies mostly within existing roadways (both paved and unpaved) in a developed area, consisting of houses and some small businesses (Figs. 3, 4). A very few auxiliary tie-ins extend into areas where there are only unimproved dirt tracks or no roads at all (Fig. 5).

The APE, extending over 1.5 miles north to south and 1.1 miles east to west (see Fig. 2), lies at elevations that vary between approximately 2,180 ft above sea level in the northeast to 2,300 ft in the southeast. This land is mostly level with few topographical features (Fig. 6). Soils in the unpaved streets and the few areas where there are no streets or only dirt tracks are composed mostly of sand, with a few areas containing small rocks. Native vegetation in

the few portions of the APE that still have it, as well as in the surrounding area, consists mostly of sparse scrub bushes and some creosote plants (see Figs. 5, 6).

## CULTURAL SETTING

### Archaeological Context

In order to understand Native American cultures prior to European contact, archaeologists have devised chronological frameworks on the basis of artifacts and site types that go back some 12,000 years. One of the more frequently used time frames for the Mojave Desert

Figure 3. A paved street, typical of much of the APE. (Birch Road, facing southeast, from south of Main Street)

Figure 4. Some of the APE is in unpaved streets. (Near the west end of Anderson Avenue, facing east)

Figure 5. The APE where there is no street. (North of the east end of Third Street along the extension of Madonna Way, facing south)

Figure 6. The APE is mostly level. (South side of Tower Avenue, facing west)

divides the region's prehistory into five periods marked by changes in archaeological remains, reflecting different ways in which Native peoples adapted to their surroundings. Based on Warren (1984) and Warren and Crabtree (1986), the five periods are the Lake Mojave Period (12,000 years to 7,000 years ago), the Pinto Period (7,000 years to 4,000 years ago), the Gypsum Period (4,000 years to 1,500 years ago), the Saratoga Springs Period (1,500 years to 800 years ago), and the Protohistoric Period (800 years ago to European contact).

This time frame is based on general technological changes from large stone projectile points, with few stones for grinding food products, to smaller projectile points with an increase in milling stones. The scheme also notes increases in population, changes in food procurement and resource exploitation, and more cultural complexity over time. During the Protohistoric Period, there is evidence of contact with the Colorado River tribes and the introduction of pottery across the Mojave Desert.

### Ethnohistorical Context

The Barstow area lies within the traditional homeland of the Vanyume Indians, a sparse population living along the Mojave River. According to Bean and Smith (1978:570), linguistically the Vanyume were probably related to their southern neighbor, the Serrano

tribe, although politically they seem to have differed from the Serrano proper. The number of Vanyumes, never large, dwindled rapidly between 1820 and 1834, when southern California Indians were removed to the various missions and their *asistencias*, and the group became extinct well before 1900 (*ibid.*). As a result, very little is known about the Vanyume today.

**Historical Context**

Located in the heart of the Mojave Desert, the Barstow area received little direct impact from the Spanish/Mexican colonization activities in Alta California that began in 1769. By the early 1830s, however, these activities brought about the establishment of the Old Spanish Trail, which passed through the vicinity of present-day Barstow to connect southern California with Santa Fe, New Mexico. Some 20 years later, a portion of this trail was turned into a wagon road from Salt Lake City to the San Bernardino Valley, and came to be known as the Mormon Trail or Salt Lake Trail. Slightly to the south of Barstow, the Mormon Trail merged with another early cross-desert thoroughfare, the Mojave Trail. Together these trails formed a crucial link between southern California and the eastern United States. In later years, this function was taken over by the Atchison, Topeka and Santa Fe Railroad and the Union Pacific Railroad, followed by the legendary U.S. Route 66, and finally by today's I-15 and I-40.

The City of Barstow, incorporated in 1947, owes its growth largely to its location on these major arteries of transportation. The initial creation of the community, however, was a result of the once booming silver mining industry in the vicinity. The original name of the community was Waterman, after Robert W. Waterman, owner of one of the principal mines (Garret 1996:208). By 1881, with a population of 500, the community was officially recognized through the establishment of a post office (*ibid.*; Burnau 1976:236). In 1885, upon the completion of the Santa Fe Railroad between Waterman and San Bernardino, the name of the community was changed to Barstow, in honor of William Barstow Strong, the Santa Fe president (Garret 1996:15). Since then, Barstow has grown into one of the most important urban centers in the Mojave Desert.

## RESEARCH METHODS

The following sections outline the methods and procedures used during this study.

### HISTORICAL BACKGROUND RESEARCH

Bai "Tom" Tang, CRM TECH historian (see App. 1 for qualifications), conducted the historical background research on the basis of published literature in local and regional history and historic maps of the Lenwood area. Among maps consulted for this study were the U.S. General Land Office's (GLO) township plat maps dated 1855 and 1932, and the U.S. Geological Survey's (USGS) topographic maps dated 1932, 1956, and 1971. These maps are

collected at the Science Library of the University of California, Riverside, and the California Desert District of the U.S. Bureau of Land Management, also located in Riverside.

## RECORDS SEARCH

The Archaeological Information Center (AIC) at the San Bernardino County Museum, Redlands, provided the records search service for this study. The AIC is the official cultural resource records repository for San Bernardino County, and a part of the California Historical Resource Information System, established and maintained under the auspices of the Office of Historic Preservation.
During the records search, Robin Laska, AIC Assistant Center Coordinator, checked the Center's electronic database for previously identified historical/archaeological resources in or near the Area of Potential Effects, and existing cultural resources reports pertaining to the vicinity. Previously identified historical/archaeological resources include properties designated as California Historical Landmarks, Points of Historical Interest, or San Bernardino County Historical Landmarks, as well as those listed in the National Register of Historic Places, the California Register of Historical Resources, or the California Historical Resource Information System.

## FIELD SURVEY

On September 7, 2000, CRM TECH archaeologists Daniel Ballester and Adrián Sánchez Moreno (see App. 1 for qualifications) drove the streets of Lenwood, following the proposed pipeline route, and examined the area for evidence of human activities dating to more than 50 years. On October 30, 2000, CRM TECH archaeologist Michael Hogan (see App. 1 for qualifications) returned to the APE to investigate more intensively those areas where archaeological or historical sites had been previously identified. With maps and site records in hand, Hogan drove along the APE, locating each previously recorded site, and noting its proximity to the APE and the probable effect that future trenching could have on it. Intensive inspections were carried out where previously recorded cultural resources were found to be within or adjacent to the APE. Photographs were taken of various site locations and their relationships to the APE.

In sum, a reconnaissance-level, or "windshield," survey was conducted over most of the APE, and on-foot intensive-level inspections were carried out in certain areas of potential concern. This strategy was chosen because, for the most part, the APE follows existing roads, many in developed residential areas, suggesting that the proposed undertaking did not warrant an intensive-level walkover along the entire project route, but rather a reconnaissance-level survey with focused on-foot spot checks.

# RESULTS AND FINDINGS

The following sections discuss the results and findings of the various research procedures detailed above.

## HISTORICAL BACKGROUND OVERVIEW

The Area of Potential Effects lies in the Barstow area, which was the nexus of several historic transportation thoroughfares across the Mojave Desert, as discussed above. The presence of these early cross-desert arteries in the vicinity, therefore, forms an important chapter in the history of the APE and the community of Lenwood. As Figure 7 shows, the historic Salt Lake Road, known more popularly as the Mormon Trail, was observed traversing through various portions of the APE in the mid-1850s. The course of this wagon road was later followed, generally, by the Atchison, Topeka and Santa Fe Railroad, which was completed in the mid-1880s (Figs. 8, 9). In the early 20th century, when an automobile highway soon to become U.S. Route 66 in the 1926 National Highway System was constructed through the Lenwood area, it too followed the general course of the Mormon Trail (*ibid.*).

Figure 7. The APE in the 1850s. (Source: GLO 1855)

Figure 8. The APE in 1920-1932. (Source: USGS 1932)

Figure 9. The APE in 1931. (Source: GLO 1932)

From the age of pack trains and stagecoaches to those of steam engines and automobiles, the APE continuously sat upon one of the most important gateways into southern California, until the present-day interstate freeway system bypassed Lenwood in favor of the less populated area to the east during recent decades. While the Mormon Trail has been long abandoned, the Santa Fe Railroad and the former Route 66 continued to serve their original purpose, albeit in much reduced roles, in the APE. Both of them have been previously recorded into the California Historical Resource Information System, as discussed in further detail below.

The modern community of Lenwood traces its roots to an isolated station on the Santa Fe Railroad named Todd, which was first listed in 1905 (Garret 1996:185). In 1922, "a pair of Hollywood subdividers" laid out a townsite around the station, and named it Lenwood, coined from the names of their agents, Leroy Leonard and Frank E. Woods (Williams 1993:3). Ten years later, some 20 buildings were noted in and around Lenwood, mostly clustered along Route 66 (Fig. 8). By the 1950s, largely as a result of the post-WWII boom, the small desert community had essentially taken shape, with a large number of buildings lining its various streets along the APE (Fig. 10). Also by that time, a second community, Grandview, had come into being in the vicinity of the APE, just to the north of the original Lenwood subdivision (*ibid.*). It was founded in 1948 by Earl Henry DePue and Edward Arnold Duitsman, who "transformed the desert here into a residential community" (Williams 1993:2).

Based on the results of the historical background research, the majority of features of built environment in and around the APE evidently post-date the late 1940s and early 1950s, although those along the former Route 66 may date to the 1920s.

Figure 10. The APE in 1956. (Source: USGS 1956)

Those features associated with the Santa Fe Railroad, in the meantime, have the potential of dating even earlier.

## PREVIOUS CULTURAL RESOURCES STUDIES IN THE VICINITY

According to records on file at the Archaeological Information Center, a total of 12 previous cultural resources studies, covering various parcels of land and linear features, have been completed within a half-mile radius of the APE (Fig. 11). Portions of the APE have been included in or crossed by three linear cultural resource studies and one part is within the boundaries of a cultural resources assessment of a tentative tract (Fig. 11). Additionally, three studies have a portion of the current project route, along Lenwood Road, as one of their boundaries.

As a result of these studies, seven prehistoric archaeological sites and four historic-era sites were identified and recorded within a half-mile radius of the APE. One of the prehistoric sites, recorded in 1949, is the former location of a Native American settlement, located approximately a half-mile north of Agate Road, the northernmost reach of the APE. Three other prehistoric sites within a half-mile of the APE consist of lithic scatters, with jasper, chalcedony, chert, opalite, and fine-grained dark gray volcanic rock types reported. One of these sites was reported to contain choppers, knives, and scrapers. The closest of these four sites to the APE lies more than 0.2 mile from it, and thus these sites are not a concern for the proposed undertaking. However, the other three prehistoric sites, and all of the historic-era sites, were recorded partially within or adjacent to the APE, and will be discussed in greater detail in the section below.

Figure 11. Previous cultural resources surveys in the vicinity of the APE (listed by AIC manuscript file number). Locations of historical/archaeological sites are not shown as a protective measure.

## PREVIOUSLY IDENTIFIED CULTURAL RESOURCES

### Site CA-SBR-2291 (Rhyolite Quarry)

Site CA-SBR-2291 is a very large quarry area. When it was first recorded in 1962 it was described as Native American quarry workshops scattered over hill tops south and east of Lenwood, with artifacts made from reddish brown jasper (Shepard 1962). In a site update record, rhyolite debitage and core fragment artifacts were described (Wohlgemuth et al. 1989). Evidence of vehicle tracks and modern trash throughout the site indicates that the site

has been heavily disturbed (*ibid*.). According to Laska, this site is part of the Sidewinder Quarry Archaeological District and, as recorded, encompasses the southern parts of the APE.

**Site CA-SBR-2910H (Route 66; Main Street in Lenwood)**

Also known as the National Old Trails Road, the Mother Road, the Will Rogers Highway, and the Main Street of America, Route 66 was one of the main arteries of the National Highway System of 1926, but its existence in California as an automobile highway dates at least to 1907 (Scott and Kelly 1988:3; Casebier 1989:148-149). By 1934, the entire length of Route 66 within California had been paved into a hard-surface modern highway (Scott and Kelly 1988:31). With the development of the new interstate highway system since the 1950s, Route 66 no longer serves as a national transportation artery, and many segments of the old highway have been abandoned over time.

Various segments of Route 66 that are still in existence in San Bernardino County, and some locations where the highway is no longer present, have been recorded as Site CA-SBR-2901H, and determined to be eligible for listing in the National Register of Historic Places (NRHP-E-OHP-3926). The proposed pipeline includes a main line in the middle of this road through Lenwood, known today as Main Street.

**Site CA-SBR-3677 (Lenwood Jasper Quarry)**

Site CA-SBR-3677 has been recorded as a Native American quarry area for jasper and chalcedony. Artifacts associated with this site include flakes, cores and hammerstones (Lerch 1981). It was noted that the site consists of a discontinuous scatter of lithic material with several concentrations (*ibid*.). The southern portion of the site, as recorded, was impacted by the construction of the mobile home park north of Jasper Road, east of Lenwood Road. Most of the site would still be intact though, and a part of its western boundary is recorded as extending to Lenwood Road.

**Site CA-SBR-6693H (Santa Fe Railroad)**

This site consists of a railroad line originally built in 1883 "for the Atlantic and Pacific Railroad Co. by Southern Pacific, and subsequently purchased by the Atchison, Topeka & Santa Fe Railroad" (Lerch 1990). It has served as a part of the second transcontinental railroad in the United States since 1885, when Santa Fe completed its line from San Diego to Barstow by way of San Bernardino and Cajon Pass, ending Southern Pacific's notorious transportation monopoly in California (Serpico 1988:21-22).

More than a century later, this historic railroad remains in heavy use. Greatly modified over the years, the site was considered not eligible for listing in the National Register of Historic Places as a result of a study done in 1990 (Lerch 1990). Nevertheless, the overall route of the railroad is historic, and subsequently was determined eligible for listing in the National

Register in 1994 (NRHP-E-94-28). A portion of the APE lies in close proximity to this railroad, and in fact crosses it at one point.

**Site CA-SBR-7125 (Lithic Reduction Site)**

Site CA-SBR-7125 is described as an "apparent lithic reduction area in a relatively level area of dune sand" (McManis 1992). The site was determined to cover some 21,000 square meters (226,000 square feet) and to consist of four rhyolite cores, two jasper cores, one chert core, two chert core fragments, two chalcedony flakes, rhyolite, chert, jasper, chalcedony, and basalt debitage, and many large shattered cobbles (*ibid*.). This site is recorded as being 150 feet west of Lenwood Road at its closest point to the APE.

**Site PSBR-62H (Victorville-Barstow Transmission Line)**

Site PSBR-62H is a 33Kv transmission line composed of "wooden poles and transmission cables" (Cunkelman 1993a). An application for this line was granted in 1918 to the Southern Sierras Power Company, which later became the California Electric Power Company (Garret 1996:195). In 1964, the power transmission line right-of-way was transferred to Southern California Edison (Cunkelman 1993a). The line crosses Ash and Birch roads at locations that are included in the APE.

**Site PSBR-63H (Victorville-Barstow Telegraph and Telephone Line)**

Site PSBR-63H consists of a telephone/telegraph line of "wooden poles and 25-pair lines (telecommunication line) strung between them" (Cunkelman 1993b). Records indicate that construction of this line began in 1916 (*ibid*.). The right-of-way was still held by the Continental Telephone Company of California (CONTEL) as an active telephone line when this site was recorded in 1993 (*ibid*.). The alignment of this resource runs along the southeast side of the railroad through Lenwood. As such, it is very close to the northwest ends of proposed pipeline laterals northwest of Main Street in Lenwood.

**FIELD SURVEY RESULTS**

**Site CA-SBR-2291 (Rhyolite Quarry)**

Site CA-SBR-2291, as recorded, is a very large site composed of Native American quarry workshops scattered over hilltops that encompasses the southern parts of the APE. Field observations for this study, however, revealed that there were no hilltops within or adjacent to the APE in the area of this site (Figs. 5, 6). Still, all portions of the APE within this site's purported boundary that contain native surfaces, as well as native surfaces adjacent to the APE, were thoroughly investigated. A few isolated pieces of chalcedony, rhyolite, and other fine-grained rocks were occasionally spotted, but none that had been purposefully modified by humans. In sum, the field survey revealed no identifiable components of Site CA-SBR-

2291 within or adjacent to the current APE. Therefore, the site will receive no further consideration in this study.

**Site CA-SBR-2910H (Route 66; Main Street in Lenwood)**

As mentioned above, a portion of the proposed pipeline right-of-way follows the old Route 66, now Main Street (Fig. 2), a four-lane highway that is still in use. Site CA-SBR-2910H, thus, partially coincides with the APE. As is the case along other active segments of this historic highway, Main Street in Lenwood has been extensively modified over the years. As a the result of this continuous maintenance and repair work, the existing roadway along the original Route 66 demonstrates no distinctive historic character within the current APE (Fig. 12).

**Site CA-SBR-3677 (Lenwood Jasper Quarry)**

Site CA-SBR-3677 has been recorded as a Native American jasper and chalcedony quarry area with several concentrations of lithic material scattered discontinuously throughout the site. This site is recorded as having part of its western boundary extending to Lenwood Road. An intensive-level on-foot survey of the location of this site along Lenwood Road revealed that there is an area where small, crude pieces of chalcedony (and other rocks) extend down a ridge to within 15 meters (ca. 50 feet) of Lenwood Road (Fig. 13). None of these pieces exhibit any sign of human tool-making activities, however. Additionally, the area to the east of Lenwood Road is highly disturbed at this location. The road is lower than the surrounding ground, underground telephone cables have been laid along the road, and a dirt road runs parallel to it (Fig. 13). Since no contributing element of the site is found within the boundaries of the APE, Site CA-SBR-3677 will not be given further consideration in this study.

Figure 12. A view of the current conditions of Site CA-SBR-2910H. (View facing northeast)

Figure 13. A view of the current conditions of Site CA-SBR-3677. (View facing south. Notice rocks in the exposed sand and the dirt road east of Lenwood Road)

**Site CA-SBR-6693H (Santa Fe Railroad)**

A portion of the Santa Fe Railroad line parallels Main Street in Lenwood, lying next to the northern extremities of the proposed pipeline laterals north of Main Street, and crosses a proposed pipeline right-of-way farther to the northeast (Fig. 2). Field inspection of the railroad shows that it has been upgraded and modernized to the point that it no longer shows any historic character to relate to its period of significance in the late 19th century (Fig. 14).

**Site CA-SBR-7125 (Lithic Reduction Site)**

Site CA-SBR-7125 is recorded as a lithic reduction area with a very low density of artifacts. During the field survey, the area of this site closest to the APE was inspected (Fig. 15). No artifacts were observed and there was no indication that this site extends to the APE. Therefore, it will not be given further consideration in this study.

**Site PSBR-62H (Victorville-Barstow Transmission Line)**

The transmission line designated Site PSBR-62H crosses Ash and Birch Roads at locations where trenching is proposed for the current undertaking. Power poles for this transmission line are situated on the side of the street, at least 10 feet from the curb. Therefore, this resource is determined to be outside the APE, and will not be given further consideration in this study.

Figure 14. A view of the current conditions of Site CA-SBR-6693H, near the APE. (View facing northeast)

Figure 15. A view of the current conditions of Site CA-SBR-7125.

**Site PSBR-63H (Victorville-Barstow Telegraph and Telephone Line)**

Site PSBR-63H is located close to the northern extremities of the proposed pipeline laterals north of Main Street, along the southern edge of the railroad line. This portion of the resource consists of wooden telephone/telegraph poles that retain old-type glass and ceramic insulators (Fig. 16). However, none of these poles are located within or adjacent to the APE. Therefore, this site will not be given further consideration in this study.

In summary, of the seven sites determined by the records search to be within or near the APE, based on the field survey, only two, sites CA-SBR-2910H and -6693H, are actually in the APE. Their evaluation and project effects on them are discussed in the following sections.

## SIGNIFICANCE EVALUATION

Based on the research results discussed above, the following sections present the historical significance evaluation of Sites CA-2910H and -6693H, the only cultural resources encountered within the Area of Potential Effects, and the conclusion on whether they qualify as "historic properties," as defined by Section 106 guidelines.

Figure 16. A view of the current conditions of Site PSBR-63H. (View facing southwest, along the railroad tracks)

## CRITERIA

The term "historic property," according to the Advisory Council on Historic Preservation, "means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior" (36 CFR 800.16(l)). The eligibility for inclusion in the National Register is determined by applying the Secretary of the Interior's criteria, developed by the National Park Service as per provision of the National Historic Preservation Act. 36 CFR 60.4 provides the criteria as follows:

> The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and
>
> (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> (b) that are associated with the lives of persons significant in our past; or
>
> (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> (d) that have yielded, or may be likely to yield, information important in prehistory or history. (36 CFR 60.4)

Against these criteria, Sites CA-SBR-2910H and -6693H are evaluated as to their qualifications as historic properties, and the results of the evaluation are outlined below.

## EVALUATION

### Site CA-SBR-2910H (Route 66; Main Street in Lenwood)

The historic U.S. Route 66, beyond any doubt, is an important landmark in modern American culture, and in the history of California and the nation at large. In fact, it has been previously determined to be eligible for listing in the National Register of Historic Places (NRHP-E-OHP-3926), and thus qualifies as a historic property. At present, a portions of Route 66 is still extant in the APE as Main Street. However, as noted during the intensive-level field inspection, today's Main Street shows no distinctive historic character, and retains little more than the original location to relate to the legendary "Mother Road's" period of significance. This portion of Route 66, in other words, exists in name only. The existing

features of Main Street, all modern in nature, are clearly non-contributing elements of Site CA-SBR-2910H, with little bearing on its overall historical significance.

**Site CA-SBR-6693H (Santa Fe Railroad)**

The completion of the Santa Fe Railroad in 1885, marking the birth of the second transcontinental railroad in the United States, can be considered an important historical event in itself. The colorful stories of its construction and its constant duel with the then-dominating Southern Pacific are well documented in current historical literature, and provide for rich folklore in local history even to this day. For these reasons, Site CA-SBR-6793H should be considered, and indeed has been determined, eligible for listing in the National Register (NRHP-E-94-28). As in the case of the historic Route 66, however, while the location of the railroad retains its historic significance, none of the existing, modern features associated with railroad operations in the APE demonstrates any historic character to relate to the site's period of significance. These features, therefore, are considered non-contributing elements of Site CA-SBR-6693H.

## PROJECT EFFECTS ASSESSMENT

Since the foregoing discussion has established that Sites CA-SBR-2910H and -6693H meet the statutory definition of "historic properties," Section 106 procedures require that the Agency Official, in this case the EPA, further determine whether the proposed undertaking will have an effect upon these properties (36 CFR 800.4(d)(1)). "*Effect*," according to 36 CFR 800.16(i), "means alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register."

**SITE CA-SBR-2910H (ROUTE 66; MAIN STREET IN LENWOOD)**

The portions of CA-SBR-2910H within the APE, as discussed above, are considered non-contributing elements of the site. Consequently, the limited disturbances to be caused by the proposed undertaking would not constitute an effect on this historic property, according to the criteria quoted above.

**SITE CA-SBR-6693H (SANTA FE RAILROAD)**

As in the case of Site CA-SBR-2910H, the existing physical features of this site within the APE have been determined to be non-contributing elements. The proposed undertaking's potential impacts on these features, therefore, would have no effect on the overall integrity and significance of the site.

In summary, although the proposed undertaking crosses two historic properties within the Area of Potential Effects, there are no historic features, elements, or characteristics present at those locations. Therefore, the project will have no effect on historic properties.

## CONCLUSION

The foregoing report has provided background information on the Area of Potential Effects, outlined the methods used in the current study, and presented the results of the various avenues of research. During the course of the study, several previously recorded cultural resources were identified in close proximity to the APE, but only two of these, Sites CA-SBR-2910H and-6693H, representing the historic U.S. Route 66 and Santa Fe Railroad, respectively, were found to be present within the APE. Both of these sites have been determined to qualify as "historic properties," but the physical features of these sites within the APE are considered to be non-contributing elements to their historic significance.

Based on these findings, CRM TECH recommends that the EPA may reach a finding that *no historic properties will be affected by the proposed undertaking*. Pursuant to 36 CFR 800.4(d)(1), no further cultural resources investigation is recommended for the proposed undertaking unless project plans undergo such changes as to include areas not covered by this study. However, if buried cultural materials are uncovered during grading and/or other construction activities, all work in that area should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

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1969b Map: Trona, Calif. (1:250,000); 1957 edition revised.
1993a Map: Barstow, Calif. (7.5', 1:24,000); 1971 edition photorevised from aerial photographs taken in 1972.
1993b Map: Barstow SE, Calif. (7.5', 1:24,000); 1971 edition photorevised from aerial photographs taken in 1972.
1993c Map: Hinkley, Calif. (7.5', 1:24,000); 1971 edition photorevised from aerial photographs taken in 1972.
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**APPENDIX 1:**

# PERSONNEL QUALIFICATIONS

## PRINCIPAL INVESTIGATOR

**Bruce Love, Ph.D., RPA (Register of Professional Archaeologists)**

### Education

| | |
|---|---|
| 1986 | Ph. D., Anthropology, University of California, Los Angeles. |
| 1981 | M.A., Anthropology, University of California, Los Angeles. |
| 1976 | B.A., Anthropology, University of California, Los Angeles. |

| | |
|---|---|
| 1996 | "CEQA 101," presented by the Association of Environmental Professionals. |
| 1995 | "CEQA Workshop," presented by Association of Environmental Professionals. |
| 1994 | "Assessing the Significance of Historic Archaeological Sites," presented by the Historic Preservation Program, University of Nevada, Reno. |
| 1994 | "CEQA 1994: Issues, Trends, and Advanced Topics," presented by UCLA Extension. |
| 1990 | "Introduction to Federal Projects and Historic Preservation Law," presented by U.S. General Services Administration Training Center. |

### Professional Experience

| | |
|---|---|
| 1993- | Owner and Principal, CRM TECH, Riverside. |
| 1990-1993 | Director, Archaeological Research Unit, UC Riverside; Coordinator, Archaeological Information Center, UC Riverside. |
| 1989-1990 | Coordinator, Archaeological Information Center, UCLA. |
| 1987-1990 | Owner and Principal, Pyramid Archaeology, Palmdale, California. |
| 1986-1987 | Junior Fellow, Dumbarton Oaks Center for Pre-Columbian Research, Washington, D.C. |
| 1981-1986 | Part-time cultural resources management consultant; doctoral student at UCLA. |

### Memberships

Register of Professional Archaeologists.
Association of Environmental Professionals.
American Planning Association.
Society for American Archaeology.
Society for California Archaeology.
Coachella Valley Archaeological Society.

## PROJECT HISTORIAN

### Bai "Tom" Tang, M.A.

### Education

| | |
|---|---|
| 1988-1993 | Graduate Program in Public History/Historic Preservation, UC Riverside. |
| 1987 | M.A., American History, Yale University, New Haven, Connecticut. |
| 1982 | B.A., History, Northwestern University, Xi'an, China. |
| 2000 | "Introduction to Section 106 Review," presented by the Advisory Council on Historic Preservation and the University of Nevada, Reno. |
| 1994 | "Assessing the Significance of Historic Archaeological Sites," presented by the Historic Preservation Program, University of Nevada, Reno. |

### Professional Experience

| | |
|---|---|
| 1993- | Project Historian, CRM TECH, Riverside, California. |
| 1993-1997 | Project Historian, Greenwood and Associates, Pacific Palisades, California. |
| 1991-1993 | Project Historian, Archaeological Research Unit, UC Riverside. |
| 1990 | Intern Researcher, California State Office of Historic Preservation, Sacramento. |
| 1990-1992 | Teaching Assistant, History of Modern World, UC Riverside. |
| 1988-1993 | Research Assistant, American Social History, UC Riverside. |
| 1985-1988 | Research Assistant, Modern Chinese History, Yale University. |
| 1985-1986 | Teaching Assistant, Modern Chinese History, Yale University. |
| 1982-1985 | Lecturer, History, Xi'an Foreign Languages Institute, Xi'an, China. |

### Honors and Awards

| | |
|---|---|
| 1988-1990 | University of California Graduate Fellowship, UC Riverside. |
| 1985-1987 | Yale University Fellowship, Yale University Graduate School. |
| 1980, 1981 | President's Honor List, Northwestern University, Xi'an, China. |

### Cultural Resources Management Reports

Preliminary Analyses and Recommendations Regarding California's Cultural Resources Inventory System (With Special Reference to Condition 14 of NPS 1990 Program Review Report). California State Office of Historic Preservation working paper, Sacramento, September 1990.

Approximately 300 cultural resources management reports with the Archaeological Research Unit, Greenwood and Associates, and CRM TECH, since October 1991.

### Membership

California Preservation Foundation.

**PROJECT ARCHAEOLOGIST**

**Michael Hogan, Ph.D.**

## Education

| | |
|---|---|
| 1991 | Ph.D., Anthropology, University of California, Riverside. |
| 1981 | B.S., Anthropology, University of California, Riverside. |
| 1980-1981 | Education Abroad Program, Lima, Peru. |
| 1992 | "Southern California Ceramics Workshop," presented by Jerry Schaefer. |
| 1992 | "Historic Artifact Workshop," presented by Anne Duffield-Stoll. |

## Professional Experience

1999- Project Archaeologist/Field Director, CRM TECH, Riverside.

1996-1998 Project Director and Ethnographer, Statistical Research, Inc., Redlands.

1992-1995 Project Director, Archaeological Research Unit, University of California, Riverside.

- Duties: supervision of all aspects of projects including communicating with clients and/or public agencies to determine appropriate scope of work and scheduling of tasks; arranging logistics, including transportation, food, and lodging; organizing crew people into appropriate tasks and directing field work; overseeing laboratory analysis of findings, including sending samples to outside researchers for analysis and cataloguing/organizing all data recovered by the fieldwork; producing final reports, including background research, description of fieldwork, discussion of study results, preparation of site records, and formulation of final recommendations.

1991-1992 Crew Chief, Archaeological Research Unit, University of California, Riverside.

1984-1998 Part-time technician for various cultural resources management firms, including CRM TECH; Archaeological Research Unit, University of California, Riverside; Cultural Resource Facility, California State University, Bakersfield; Greenwood and Associates; RMW Paleo Associates; and WESTEC Services, Inc.

## Publications

Author, co-author, and contributor to more than 35 archaeological publications and CRM reports, including "Yuma Area Office Sediment Project: Contact with Native Americans" (1998), "Early Hunter-Gathers and Historic Settlers along San Sevaine Creek: Data Recovery Efforts at the Hunter's Ridge Community Development Project" (1998), "Continuity and Change: 8,500 Years of Lacustrine Adaptation on the Shores of Lake Elsinore" (1997), and "Historic Properties Management Report for the Whittier Narrows Flood Control Basin" (1997).

## PROJECT ARCHAEOLOGIST

### Mariam Dahdul

**Education**

| | |
|---|---|
| 2001 (Exp.) | M.A., Anthropology (specializing in Archaeology), California State University, Fullerton. |
| 1993 | B. A., Geography, California State University, Fullerton. |

**Professional Experience**

| | |
|---|---|
| 2000- | Project Archaeologist, CRM TECH, Riverside. |

**Laboratory and Field Experience**

| | |
|---|---|
| 1999-2000 | Assisted in the catalogue and analysis of artifacts at the CSU, Fullerton archaeology laboratory. |
| 1999 | Field survey course under the direction of Phyllisia Eisentraut; surveyed and mapped prehistoric site in the Mojave Desert. |

## PROJECT ARCHAEOLOGIST

### Daniel Ballester, B.A.

**Education**

| | |
|---|---|
| 1998 | B.A., Anthropology, California State University, San Bernardino. |
| 1997 | Archaeological Field School, University of Las Vegas and University of California, Riverside. |
| 1994 | University of Puerto Rico, Rio Piedras, Rio Piedras, Puerto Rico (August to December). |

**Professional Experience**

| | |
|---|---|
| 1999- | Project Archaeologist, CRM TECH, Riverside. |
| 1998-1999 | Field Crew, K.E.A. Environmental, San Diego.<br>• Two and a half months of excavations on Topomai village site, Camp Pendleton. |
| 1998 | Field Crew, A.S.M. Affiliates, Encinitas.<br>• Two weeks of excavations on a site on Red Beach, Camp Pendleton, and two weeks of survey in Camp Pendleton, Otey Mesa, and Encinitas. |
| 1998 | Field Crew, Archaeological Research Unit, University of California, Riverside.<br>• Two weeks of survey in Anza Borrego Desert State Park and Eureka Valley, Death Valley National Park. |

## PROJECT ARCHAEOLOGIST

### Adrián Sánchez Moreno, B.A.

**Education**

1999 B.A., Anthropology (with emphasis in Archaeology), University of San Diego.

**Professional Experience**

2000- Project Archaeologist, CRM TECH, Riverside.

1999 Field Crew, excavation in Camp Pendleton Marine Corps Air Base, Oceanside. K.E.A. Environmental, San Diego.

1999 Field Crew, excavation at Freedmen's Cemetery site in Alexandria, Virginia. URS Greiner Woodward & Clyde.

1999 Field Crew, survey and excavation in Guerrero Negro, Mexico.
- Including identification of osteological specimens.

1999 Field Crew, excavation at Lake Chapala, Baja California, Mexico.
- Excavation and cataloguing of lithic artifacts from the oldest known site in Baja California.

1998 Field Crew, petroglyph survey in San Pedro Atacama, Chile.
- Focusing on identification of possible habitation and petroglyph sites.

# APPENDIX 2

# FOCUSED DESERT TORTOISE SURVEY
(*Gopherus agassizii*)

for the

## Lenwood/High Desert Estates Sewer Project
## EPA Grant Application No. XP-989700-01-0

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Submitted to:

**U.S. Fish and Wildlife Service**
**Barstow Field Office**
222 E. Main Street, Suite 102
Barstow, California 92311

Prepared for:

**U.S. Environmental Protection Agency, WTR-3**
75 Hawthorne Street
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Prepared by:

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**January 22, 2001**

# TABLE OF CONTENTS

# INTRODUCTION AND SUMMARY OF FINDINGS

Tom Dodson & Associates (TDA) has conducted a general biological and focused desert tortoise (*Gopherus agassizii*) survey for the and the Environmental Protection Agency on behalf of the County of San Bernardino's Office of Special Districts who is seeking federal funds to replace a failing septic tank system with a sewer system (see Figure 1 for Regional Location and Figure 2 for Site Location). The purpose of this investigation is to determine if there are desert tortoises on or within the vicinity of the proposed construction alignment.

The proposed project encompasses the communities of Lenwood and Grandview, which are part of an unincorporated area within the sphere of influence of the City of Barstow (adjacent to and west of the city limits) in San Bernardino County, California. The proposed sewer improvements would occur in two locations: High Desert Estates and the Lenwood Development. The total project areas is approximately 1.07 square miles which can be mapped within the USGS – Barstow, California, 7.5 Minute Series Quadrangle in Sections 8 and 17, T9N, R2W SBM (see Figure 2 for site location map).

The proposed project does not occur within Designated Critical habitat for the desert tortoise. The project occurs within the Bureau of Land Management's Habitat Classification as "Class 2" habitat for the desert tortoise (*Gopherus agassizii*) a federal and state listed Threatened Species. A survey was conducted according to the standard protocol established by the U.S. Fish and Wildlife Service. These surveys require 100% coverage of the entire construction area and zones of influence transects were conducted wherever possible. The surveys for the proposed sewer alignment were conducted on September 5-7, 2000. A confirmatory survey was then conducted on November 1-2, 2000. The purpose of these surveys was to determine the presence or absence of this species within the proposed sewer alignment.

The results of this survey is that no tortoise or tortoise signs were found within 30 feet on either side of the proposed alignment, nor was any sign observed within the zone of influence. Further, no other state or federally listed Endangered/Threatened species will be adversely effected by the proposed project. No wetland or other sensitive habitats will be adversely effected by the proposed sewer construction.

Figure 1 (Regional Location Map)

This figure is available upon request. Please contact Carolyn Yale, yale.carolyn@epa.gov, (415)-744-2016.

Figure 2 (Assessment District CSA 70 S-7)

This figure is available upon request. Please contact Carolyn Yale, yale.carolyn@epa.gov, (415)-744-2016.

# METHODS

The California Natural Diversity Data Base (NDDB), literature references, and related environmental documents were examined to obtain information on species occurrences in the project area. Finally, the Bureau of Land Management's map designating the habitat classes was used to determine in which habitat class the property is located. According to this map, the property is within Class 2 habitat. The following methodology is that recommended by the U.S. Fish and Wildlife Service for surveys conducted in Class 2 habitat.

Field surveys were conducted by Steve Gardner of Southwestern Desert Environmental and Michael Kegarice of Tom Dodson & Associates on September 5-7, 2000. One hundred percent of the pipeline alignment was surveyed 30 feet on either side of the centerline. Where encountered, the bases of perennial shrubs were checked for burrows and signs. Any suspect burrows were examined for shape, scats, or tracts. Transects were terminated when structures were encountered and picked up again on the other side were it was possible to do so. All the transects surveyed are shown on the attached data sheets (Appendix B). Photos were taken to characterize habitat conditions. Additionally, disturbance characteristics and all other animal signs were recorded.

# BACKGROUND INFORMATION

The desert tortoise (*Gopherus agassizii)* is a state and federal listed Endangered Species. Throughout its range it is endangered by habitat loss, domestic grazing, predation, collections, and increased mortality rates (Feldmeth et al. 1990).

The desert tortoise is typically found in creosote bush scrub. They are most often found on level ground where the substrate is firm but not too rocky. Tortoise presence can be detected by their scat and by their characteristic burrows which are typically found at the base of shrubs or in the sides of washes. Tortoise scat is very distinctive and may remain on the desert floor for many years.

There are no recorded observations of desert tortoise in this project location or from adjacent areas (CNDDB 2000). The project does not occur in Designated Critical Habitat as identified by the U.S. Fish and Wildlife Service. The project occurs in BLM desert tortoise habitat designated Class 2 by the U.S. Fish and Wildlife Service. Class 2 areas are described as within the range of the tortoise. The management goal for Category 2 habitat is to maintain viable populations by protecting them from human disturbance.

# RESULTS

No State or Federal listed species or locally sensitive biological resources were observed during any of the field surveys. The result of this analysis is that no tortoise signs of any kind was found on the proposed alignment, was any sign observed within the zone of influence. The site is predominantly residential and disturbed. Because no sign is known to occur within the proposed project area or within the "zone of influence" for the site, the project does not have the potential impacts tortoises.

## Weather

The 100% coverage of proposed sewer pipeline alignment was surveys the September 5th through the 6th. During this period it ranged from clear to mostly cloudy with winds from calm to 10 miles per hour. The temperature ranged from the low 80EF to the high 80EF for the entire survey period.

## Soils and Topography

The Mojave Desert is characterized by low mountain ranges and undrained alluvial basins or valleys. The project area is located at the southwestern margin of the Miocene Barstow Basin, containing over 2,000 meters of lacustrine, fluvial, and alluvial fan sedimentary rocks. Sedimentary rocks of Tertiary age and unconsolidated to semi-consolidated sediments of Quarternary age are associated with areas east and northeast of the project area. These exposed or surficial rocks are mainly gray clay shale, some interbedded gray micaceous sandstone, and several beds of hard tan dolomite or limestone up to five feet thick. Most of the eastern portion of the project area contains semiconsolidated older fanglomerate deposits of late Pleistocene age. The western portion of the project area consists of Holocene to possibly latest Pleistocene-age alluvial deposits. These types of deposits originated as outwash and slopewash from adjacent higher lands. Additionally, localized artificial fill originating from residential and commercial development is scattered across the project area.

The land form for the project site is desert bajada (alluvium derived from granitic material) with slopes between 2% and 9%. The soils are classified by the National Resource Conservation Service (NRCS) as the following, the Cajon series and the Victorville series.

The Cajon series consist of mixed thermic typic torripsamments. The Victorville series are coarse-loamy, mixed (calcareious) thermic typic torrifluvents. Three specific soils types are indicated on the soils map under these series:

- **Cajon Sand, 0-2% slopes** – Very deep, excessively drained soils on alluvial fans. Alluvium derived from granitic materials. Elevation 1,800-3,200 feet. Rapid permeability—limitations on septics. Runoff slow.

- **Cajon Sand, 2-9% slopes** – Deep, excessively drained soils on alluvial fans. Elevation 1,800-3,500 feet.

- **Victorville Sandy Loam, 0-2% slopes** – Very deep, moderately drained soils on low river terraces and in floodplains. Alluvium derived from granitic materials. Elevation 2,200-2,800 feet. Permeability moderately rapid to 50 inches and moderately blow below this. Medium runoff–flooding hazard. Subject to soil blowing.

## Biological Setting

The High Desert region, which includes the Victor Valley communities, has an arid, upland desert climate. Mean summer temperature is 88EF and mean winter temperature is 49EF. The general region is seismically active and subject to potentially significant regional seismic events. The nearest known active faults to the project site are the northwest to southeast trending faults (San Andreas and San Jacinto) in the vicinity of Cajon Junction near the southern portion of the service area, approximately 20 miles south of the treatment plant. The Helendale Fault is located about 8 miles northeast of the project area.

Barstow and vicinity are in the Mojave Desert, containing flora and fauna typical of the region. The project area has the general desert condition of sparse vegetation. The plant communities in the Barstow area are categorized in the General Plan as:

- **Mojave Creosote Bush Scrub** – This is the common plant community of most of the western portion of the Mojave Desert. Creosote bushes (*Larrea tridentata*) are widely spaced shrubs between two and seven feet tall. Other associated plants are burrobush, desert senna, Nevada joint-fir, cheesebush and boxthorn. Creosote bush scrub often integrates with saltbush scrub. Creosote bush scrub is associated with well-drained secondary soils with very low available water holding capacity on slopes, fans, and valleys, i.e., generally in hillier locations.

- **Desert Saltbush Scrub** – These are low, grayish shrubs, one to four feet tall, of various species (*Atriplex*). These plants are tolerant of high soil salinity and are often found around the edges of dry lake playas. They are also associated

with the Mojave River floodplain and adjacent areas, being the dominant plant community. Other plants found here are spiny hopsage, boxthorn, suaeda and goosefoot. This plant community is generally confined to fine-textured, poorly drained soils with high salinity and/or alkalinity.

- **Mojave River Associated Habitats** – The main channels of the river itself are very sandy and sparsely vegetated. Tamarisk (*Tamarix*), a non-native species, can be found in clusters along with mulefat, mesquite, willow and other wash-adapted plants. Cottonwood and willow stands can be found in certain locations. Additionally, there are mesquite hummocks in areas adjacent to the river corridor, these being found in sandy elevated "dune-like" locations.

- **Agricultural Lands** – The northwestern portion of Barstow and portions of the Mojave River bottom have been converted from saltbush scrub to agricultural fields. Active fields contain primarily alfalfa. Inactive fields contain mustards, grasses, and weeds such as the Russian thistle.

- **Urban and Other Degraded Lands** – Residential and commercial development has replaced creosote bush scrub and desert saltbush scrub plant communities with non-native grasses, ornamental shrubs and trees, and non-native weeds. Many locations are bare ground or covered by asphalt and structures.

According to the General Plan, areas to the south/southeast of the project area are designated a "high" biological resource area, primarily due to being desert tortoise habitat. Areas to the east and west of the project area are designated as a "medium" biological resource area. The Mojave River corridor, a designated "special" biological resource area, is approximately a mile to the north. Urban and degraded lands are considered to have the lowest biological resource value.

Most of the project area has been previously disturbed and there are residences and other facilities on the sites. However, south and east of the Lenwood community are undeveloped lands containing creosote bush, such that they could be used by the Federally-listed threatened species, the desert tortoise (*Gopherus Agassizii*). The lands to the west, south and north of High Desert Estates are also vacant, consisting of saltbush scrub and dune-like areas. The nearest large agricultural field is a mile to the north of the Mojave River and east of Lenwood Road and contains alfalfa. The Mojave River corridor is north of High Desert Estates and consists of bare sand or sparsely vegetated sand.

As construction activities to emplace sewer lines would disturb areas adjacent to desert tortoise habitat, a desert tortoise survey has been prepared. Biological conditions and other results of this survey are discussed in the environmental consequences section of this report.

### Wildlife

Wildlife observations made during the survey were dominated by bird and mammal species. Observations of wildlife include scat, tracks, burrows, nest, calls and individual animals. Common mammals are California Jack-rabbit (*Lepis californicus*), Kangaroo rat (*Dipodomys sp*), Canines (*Canis lupis familularis and Canis latrans*), and antelope ground squirrels (*ammospermophilus luecerus*). Common bird species observed were Raven (*Corvus corax*) and mourning dove (*zenaida macroura*). Common reptile species observed include side blotched lizard (*Uta stansburiana*) and western whiptail (*Cnemidophorus tigris*).

### Disturbances

The level of disturbance is severe to moderate. The disturbances range from complete residential development and agriculture to moderately disturbed open areas of native habitat. The most common disturbance in the native habitat areas were off-road vehicle use, dumping, and litter.

## DISCUSSION

No tortoises will be impacted by the proposed sewer construction. Regardless of the survey results, tortoises cannot be subject to take per the requirements of state and federal law. This report does not constitute authorization for incidental take of the desert tortoise. Handling or other inappropriate treatment of tortoises must be avoided until authorization is obtained from the U.S. Fish and Wildlife Service and California Department of Fish and Game.

It should also be noted that the general practice of the U.S. Fish and Wildlife Service is to recognize the validity of the surveys findings for a period of one year, after which time the findings are considered to be outdated.

## CONCLUSIONS

The results of this survey is that no tortoise or tortoise signs were found within 30 feet on either side of the proposed alignment, nor was any sign observed within the zone of influence. Further, no other state or federally listed Endangered/Threatened species will be adversely effected by the proposed project. No wetland or other sensitive habitats will be adversely effected by the proposed sewer construction.

In the event that a tortoise does immigrate onto the site prior to grading, the project proponent is hereby informed that the loss of any tortoise is still considered an illegal take. Therefore if tortoises are observed during grading activities, it is the responsibility of the project proponent to stop grading and contact the U.S. Fish and Wildlife Service.

## LITERATURE CITED

California Natural Diversity Data Base, updated October 1998.

Desert Tortoise Council, 1996. "Guidelines for Handling Desert Tortoise during Construction projects".

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National Geographic Society. 1987. Field Guide to Birds of North America, 2nd Edition, National Geographic Society, Washington, DC.

Stebbins, Robert C. 1985. A Field Guide to Western Reptiles and Amphibians. Houghton Mifflin Company, Boston, Massachusetts.

Manual of the Fourth Annual Desert Tortoise Survey Techniques 1996. Report Writing, and Handling Procedures Workshop presented by the Desert Tortoise Council.

**Looking west at Lenwood Road and Jasper Mobile Home Park, Barstow**

**Paris Avenue looking south, Lenwood area, Barstow**

**Looking east at Lenwood Road and Mojave River Crossing, Barstow**

**Looking southwest from Southwest Lenwood Community, Barstow**

**Looking southwest in Lenwood Community at Park on Ash Street, Barstow**

**Main Street looking west to Lenwood Road intersection (at Hannan Street), Barstow**

# APPENDIX A

# SPECIES LIST

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## PLANT SPECIES

| **Angiospermea: Dicotyledonae** | **Flowering plants: Dicots** |
|---|---|
| Amarantheceae | Amaranth Family |
| Amaranthus sp. | Pigweed |
| Asteraceae | Sunflower Family |
| Ambrosia acanthicarpa | Ann. Bur-sage |
| Ambrosia dumosa | Burro-weed |
| Chrysothamnus nauseosus | Rabbitbrush |
| Boraginaceae | Borage Family |
| Amsinckia sp. | Fiddleneck |
| Chenopodiaceae | Goosefoot family |
| Atriplex polycarpa | Saltbush |
| salsola iberica | Russian thistle |
| Polygonaceae | Buckwheat Family |
| Eriogonum fasciculatum | California buckwheat |
| Zygophyllaceae | Caltrop Family |
| Larrea tridentata | Creosote bush |
| **Angiospermae: Monocotyledonae** | **Flowering Plants: Monocots** |
| Poaceae | Grass Family |
| Bromus rubens | Red brome |
| Bromus tectorum | Cheat grass |
| Schismus barbatus | Abu-mashi |

## ANIMAL SPECIES

| **Reptilia** | **Reptiles** |
|---|---|
| Iguanidae | Iguanids |
| Uta stansburiana | Side blotched Lizard |
| Phrynosoma coronautm | Horned Lizard |
| Teiidae | Whiptails |
| Cnemidophorus tigris | Western Whiptail |
| **Aves** | **Birds** |
| Columbidae | Pigeons and doves |
| Zenaida macroura | Mourning Dove |
| Corvidae | Crows and Jays |
| Corvus corax | Common Raven |
| Mimidae | Mockingbirds and Thrashers |
| Toxostoma redivivum | California Thrasher |
| **Mammalia** | **Mammals** |
| Leporidae | Rabbits and hares |
| Lepis californicus | Black-tailed jackrabbit |
| Sciuridae | Squirrels, chipmunks |
| Ammospermophilus leucurus | Antelope ground Squirrel |
| Spermophilus beechyi | California Ground Squirrel |
| Hetermyidae | Pocket mice and Kangaroo rats |
| Dipodomys sp. | Kangaroo rats |
| Canidae | Foxes, wolves and dogs |
| Canis latrans | Coyote |
| Canis lupis familularis | Dog |

# APPENDIX B

# DATA SHEETS

# COUNTY OF SAN BERNARDINO
# NOTICE OF INTENT TO
# ADOPT A MITIGATED NEGATIVE DECLARATION

To: San Bernardino County
Clerk of the Board of Supervisors
385 North Arrowhead Avenue
San Bernardino, CA 92415

From: San Bernardino County
Special Districts Department
157 West Fifth Street, 2nd Floor
San Bernardino, CA 92415

**Subject:**

**Filing of Notice of Intent to Adopt a Mitigated Negative Declaration in compliance with Section 21092.3 of the Public Resources Code.**

The County of San Bernardino, in cooperation with the City of Barstow and the United States Environmental Protection Agency (EPA), will consider the installation of a sewage collection system in the Lenwood/High Desert Estates portion of the County and connection of this collection system to the City of Barstow's wastewater reclamation plant for treatment. The project will affect approximately 1,003 parcels of land by installing approximately 55,380 lineal feet of sewer and support facilities to transport sewage to the wastewater reclamation facility for treatment.

**Project Title:** Lenwood/High Desert Estates Sewer Project, EPA Grant Application No. XP-989700-01-0

| to be assigned | Gary Martin | (909) 387-5964 |
|---|---|---|
| **State Clearinghouse Number** | **Lead Agency Contact Person** | **Telephone Number** |

**Project Location**

The project will be constructed in the unincorporated communities of Lenwood and Grandview just west of the City of Barstow. The project area encompasses portions of Sections 8 and 17, T9N, R2W, SBM which is located on the Barstow 7.5' USGS Topographic Quadrangle.

**Project Description**

The project consists of installing approximately 55, 360 lineal feet of sewer within existing road rights-of-way and support facilities required to transport sewage from the 1,003 proposed connections to the Barstow Wastewater Reclamation Facility. Existing Septic tanks will be pumped, their septage transported to the Barstow Landfill for disposal, and permanently closed.

**Proposed Review Process**

This is to advise that the County of San Bernardino has determined that a Mitigated Negative Declaration is the appropriate CEQA environmental determination for the proposed project. The County Service Area 70, S-7 and City of Barstow will act as a CEQA Responsible Agency for this project and the EPA is proposing to adopt a Finding of No Significant Impact for this project as its NEPA environmental determination. At a Board of Supervisors meeting to be scheduled in the future after public review of the Initial Study, the County proposes to adopt a Mitigated Negative Declaration in accordance with CEQA and the State CEQA Guidelines. The County Board of Supervisors meeting will be held at the address listed above. The proposed Mitigated Negative Declaration will be available for public review and comment from January 29, 2001 through February 27, 2001. Copies of the Initial Study are available at the Barstow library and can be obtained from County of San Bernardino by request at the phone number and address identified above. Copies of reference materials will be made available at the Special District's offices upon request by interested parties.

Signature Date Title